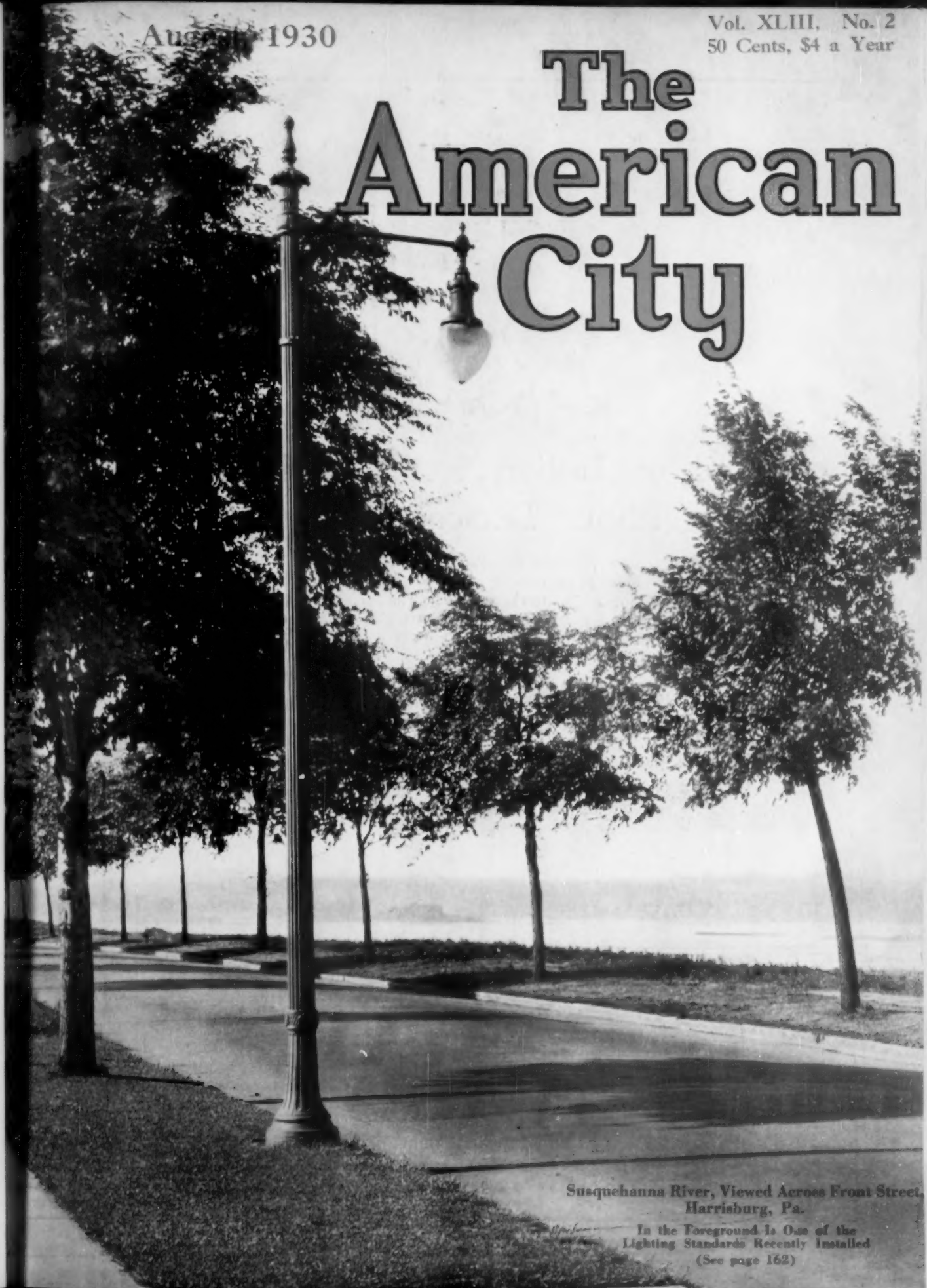
August 1930

Vol. XLIII, No. 2
50 Cents, $4 a Year

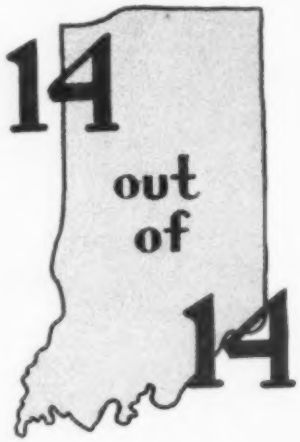
The American City



Susquehanna River, Viewed Across Front Street, Harrisburg, Pa.

In the Foreground Is One of the Lighting Standards Recently Installed

(See page 162)



None of Indiana's 14 Largest Cities Is Without Texaco Asphalt Paving

Proof positive of a paving material's standing is to be found in the number of the country's most important cities served by it. For that reason, it should not be overlooked that two-thirds of the largest cities of the United States are partially served by TEXACO Asphalt paving.

Among Indiana's outstanding cities, TEXACO Asphalt has the distinction of serving traffic in all fourteen. These fourteen cities include all those in the State, whose population exceeds 25,000.

The same story of TEXACO Asphalt paving's popularity among leading cities holds true generally: 20 of Massachusetts' 29 largest cities have TEXACO paving; so have 20 of Ohio's 26 principal cities; 12 of Texas' 12 largest; 18 of New Jersey's 23 chief cities; 18 of the 20 largest Illinois cities and 6 of Florida's 7 foremost municipalities.

Delaware Street, a busy thoroughfare of Indianapolis, Ind. Paved with Texaco Sheet Asphalt

Anthony Boulevard, a beautiful residential street of Fort Wayne, Ind. Paved with Texaco Asphaltic Concrete

TEXACO ASPHALT

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Philadelphia
Richmond
Boston
Jacksonville

The Texas Company
ASPHALT SALES DEPT.
135 East 42nd St., New York City

Chicago
Cleveland
Kansas City
Houston
Dallas
Buffalo

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EDGAR J. BUTTENHEIM, Pres. and Mgr.
HAROLD S. BUTTENHEIM, Editor
THEODORE R. KENDALL
Secretary and Engineering Editor
H. M. OLMSTED M. V. FULLER
MARTHA CANDLER
Associate Editors
HERBERT K. SAXE
Treasurer
PRENTICE C. FORD
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MYRON MacLEOD
Advertising Manager

BRANCH OFFICES
Daily News Plaza, Chicago
TOM DIX, Vice-President
642 Hanna Building, Cleveland
GEORGE S. CONOVER, Manager
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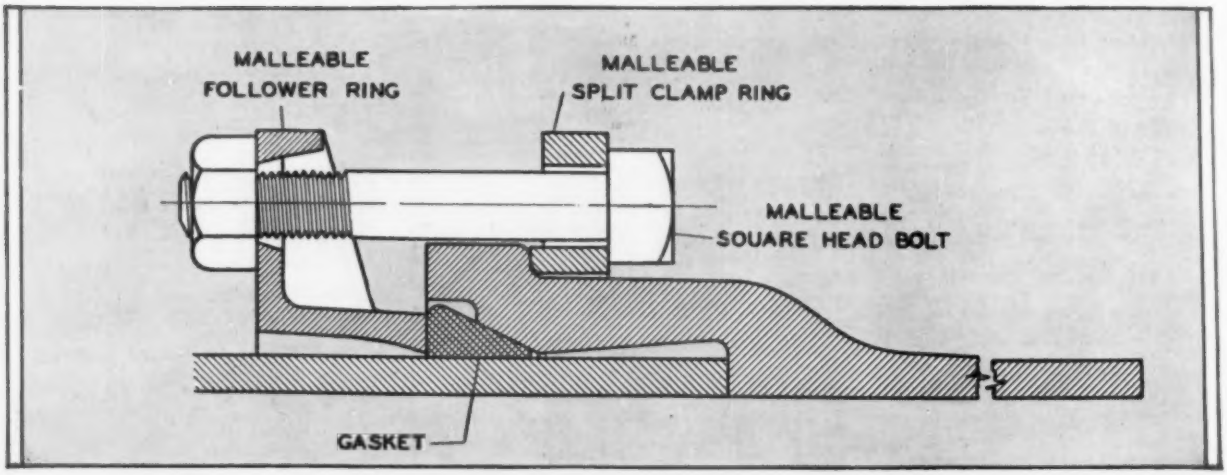
In THE MUNICIPAL INDEX (an 850-page annual volume) readers will find much material, including articles, lists and bibliographies on a wide variety of municipal and civic subjects, not published in the monthly issues of THE AMERICAN CITY

For Index to Advertisements see page preceding back cover.

This NEW gas-tight ANTHONY JOINT



allows for greater deflection

It is remarkable, the amount of deflection which the improved Anthony Joint allows. This is due to the unique bell design as shown in the above illustration. You will notice that the gasket, while being held securely in place by the follower ring, functions as a fulcrum, allowing the spigot an unusual amount of play within the bell chamber.

Over the length of several pipes, this play or freedom results in a surprising amount of deflection. It permits a line of Anthony Joint pipe to be laid in steep or sharp curving trenches without the use of special bends.

Anthony Joint Pipe has been proved to be absolutely gas-tight under maximum pressure and deflection. And, it is quickly and easily assembled by unskilled labor.

The improved Anthony Joint is now made for both pit cast pipe and deLavaud centrifugally cast pipe. Rings and gaskets are interchangeable. We especially recommend Anthony Joint fittings for use also with standard plain end pipe.

Let us send you complete information regarding the advantages which this newly improved Anthony Joint offers.

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Our pipe bears the "Q-Check" *trademark of The Cast Iron Pipe Research Association*

NEWS and VIEWS of INTEREST to MAYORS AND CITY MANAGERS

If You Have Served Your City Twenty-One Years or Longer

please send to THE AMERICAN CITY, 443 Fourth Avenue, New York, your name and present title; the date and title of your first position with the city; and the date of appointment or election to your present position.

This information is desired for a list of municipal officials and department heads who have served their respective communities since 1909 or longer, for publication in the September number, which will be the twenty-first anniversary number of this magazine.

President Hoover on City Planning

AT the recent National Conference on City Planning, in Denver, Colo., a special message from President Hoover was read. In addition to extending his greetings, the President said:

"The increasing complexity of city life makes it ever more necessary that far-sighted provision for future expansion shall consider measures not only to conserve economic values, but also to make wise provision for the health and recreation of the men, women and children of these great communities."

Detroit Recalls Its Mayor

THE recall of public officers was never intended as more than "a gun behind the door," and we are pleased to note that less and less recourse is had to it. On proper provocation it is a weapon of much importance and should, we think, be used fearlessly. Detroit has just used it to retire Mayor Charles Bowles. We know nothing of the merits of the case against him except that the newspapers of the city condemned him and their indictment was endorsed by the thoughtful Detroit Citizens League. An unusually heavy vote in the recall election defeated him 120,863 to 89,907. As a strange aftermath, on the day following the election, a radio announcer who had had a prominent part in the recall campaign was murdered in bold gangster fashion in the crowded lobby of one of the city's leading hotels. A new election will be held within thirty days, at which Mayor Bowles announces he will seek re-election.

Chamber of Commerce Secretary Made City Manager

ON July 15 a new City Manager took office in Berkeley, Calif. Hollis R. Thompson, Secretary-Manager of the Chamber of Commerce for two and one-half years, was elected by the City Council to succeed John N. Edy, who recently resigned to become city manager of Flint, Mich.

International Town Planning and Housing Congress and Exhibition in Berlin Next Year

PLANS are being perfected for the great German building exhibition (Deutsche Bausstellung) which is to be held in Berlin from May 9 to August 9, 1931. One of the important features of this will be an international town planning and housing exhibition, in which American participation is invited.

During June 8-13, 1931, a Housing and Town Planning Congress will be held under the auspices of the International Federation for Housing and Town Planning. Subjects to be given special consideration at the Congress are "The Abolition of Slums" and "Traffic in Relation to Town and Regional Planning." A copy of the program, when completed, will be obtainable on application to the headquarters of the Federation, 25 Bedford Row, London, W. C. 1, or from Flavel Shurtleff, Secretary, National Conference on City Planning, 130 East 22nd Street, New York.

When a City Hall Cornerstone Is Laid

"AS we are about to set this stone, let us dedicate our lives, as officials and as citizens, to unselfish service for the welfare of our city and all of its people.

"Let us bear constantly in mind that if we are faithful to our own generation, we shall not only fulfill the hope of our fathers, but we shall best serve the cause for our children.

"In a spirit of cooperation that will bind together all of our people with bonds infinitely stronger and more enduring than the steel with which this structure is fabricated, let us resolve to place the welfare of our city above all other considerations.

"If we do this, the faith in our future which inspired our people to authorize this splendid hall will have been justified and the sacrifice which it necessitates will not have been in vain."

These are the words with which Mayor Charles E. Roesch, of Buffalo, N. Y., recently laid the cornerstone of the new $7,000,000, 32-story city hall* which is scheduled for completion in time for the city's centennial celebration in 1932. The entire program was characterized by the simplicity and brevity of the Mayor's address, and was in marked contrast to the elaborate Masonic rites that attended the cornerstone laying of the old city and county building in 1872, just as the contents of the new cornerstone were in contrast with those of the old in number. The new stone contains a copper box with copies of the daily newspapers, the Mayor's annual message, a parchment signed by the principal municipal officials, a copy of the city charter, council proceedings relating to the building, the annual budget, the Red Book of the state, and a $5 gold piece and a $1 bill. Workmen—for good luck—tossed copper coins into the cement that was to hold the stone, before it was set.

* See THE AMERICAN CITY, November, 1928, page 121.

Police Pension Systems in New York Cities

NEW YORK State appears to be well in the lead in the matter of police pensions. Forty-seven of the 60 cities of the state pension their police. Fifteen of these include their policemen under the state retirement system; the others maintain their own systems. All of these systems are contributory. They permit a service retirement after 20 or 25 years, usually at the age of 60, at half salary. There are generous provisions for disability, retirement and pensions for the widows of men killed in the performance of duty.

Paterson and Montclair Act Under New Jersey's New Planning Law

TO the city of Paterson belongs the credit for being the first municipality in the state to adopt an ordinance under Chapter 235 of the New Jersey Laws of 1930—the Planning Enabling Act—the provisions of which were outlined on page 171 of THE AMERICAN CITY for May, 1930.

This action by Paterson was followed on July 2 by the adoption of an ordinance by the Board of Commissioners of Montclair, creating a planning board for that town.

The Paterson ordinance is very brief, and confers upon the planning board all the powers permitted under the enabling act. The Montclair ordinance goes into much greater detail and was drafted by its Town Counsel, George S. Harris, who, as a member of the Legal Advisory Committee of the New Jersey State League of Municipalities, did most of the work in the drafting of the state enabling act.

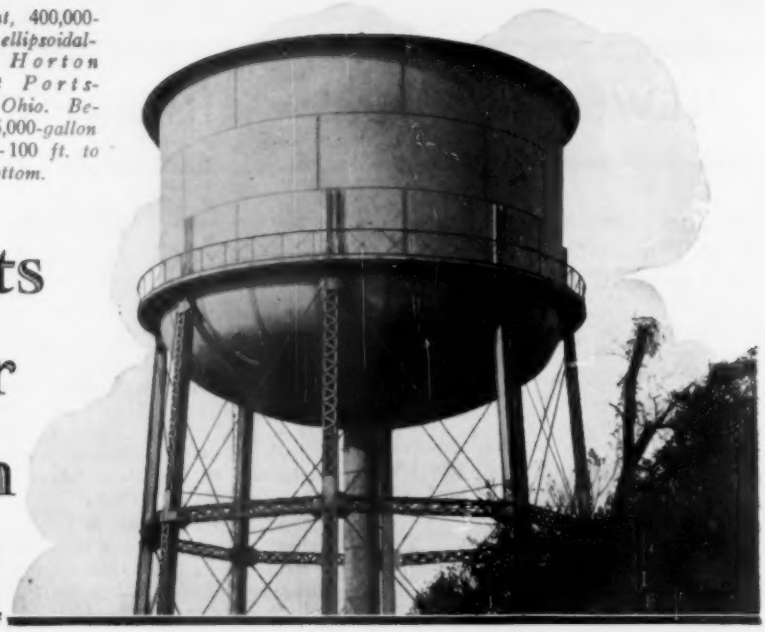
In several other municipalities throughout New Jersey, ordinances for the creation of planning boards have been introduced or are under consideration.

COMING NEXT MONTH

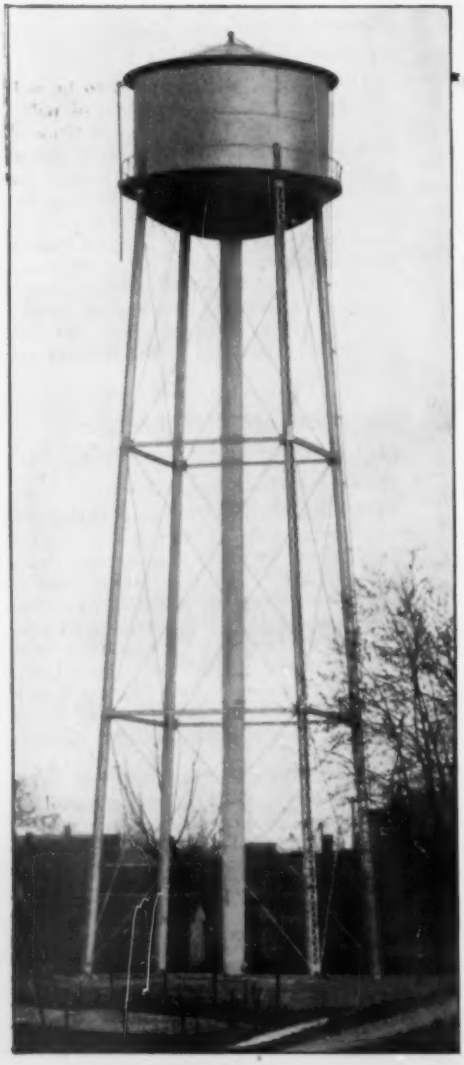
The Twenty-first Anniversary Number of THE AMERICAN CITY

Worth watching for!

At right, 400,000-gallon, ellipsoidal-bottom Horton tank at Portsmouth, Ohio. Below, 75,000-gallon tank—100 ft. to bottom.



Improvements in your water supply system



need not involve high cost

Engineering studies and the experiences of many cities have shown that bringing a water system up to first class condition need not be costly.

With one or more Horton ellipsoidal-bottom storage tanks in the system, both the first cost and annual costs may be considerably less than with other methods of improvement. In a city of 65,000 population, for instance, improvements including elevated storage showed an annual cost about 17% less than the lowest of three other plans. A 1,000,000 gallon tank was installed and the savings check with the survey.

Costs are cut because of less depreciation and interest charges, and because less pumping is required. The first cost is low . . . improvements are made without the expense and bother of torn up streets for main replacements, because Horton elevated storage permits existing mains to work 24 hours a day instead of 14 to 16. Costly main enlargements and increased pumping capacity may thus be postponed for years.

It is also possible that Horton elevated storage will permit a more advantageous fire insurance classification. We will gladly cooperate on water system problems and furnish estimates on tanks. Please address our nearest office.

CHICAGO BRIDGE & IRON WORKS

Chicago	2127 Old Colony Bldg.	Birmingham	1502 Fiftieth St., N.
New York	3108 Hudson Term. Bldg.	Dallas	3306 Magnolia Bldg.
Cleveland	2236 Union Trust Bldg.	Atlanta	2114 Rhodes-Haverty Bldg.
Detroit	1501 Lafayette Bldg.	San Francisco	1033 Rialto Bldg.
Philadelphia	1616 Jefferson Bldg.	Seattle	L. C. Smith Bldg.
Boston	1501 Consolidated Gas Bldg.	Houston	1101 Electric Bldg.

HORTON TANKS

AC8-Gray

PURE WATER—MAN'S GREATEST NEED

WATER SUPPLY AND PURIFICATION

More Attention Now Paid to Large Users of Water in Dallas

IN the past, the Dallas, Texas, waterworks has not been equipped to test meters larger than the 2-inch size. During the past few months, however, the question of proper attention and check on the large meters has been given more thought. Coincident with a new campaign to enlarge the industrial water sales as a logical means to cheaper water rates, the matter of adequate attention to the large meters has been taken up in earnest. Heretofore, less than 10 per cent of the sales have been in amounts to 250,000 gallons per month through one meter, and, as a result, no particular supervision was given to the meters unless they stuck and stopped registering entirely. Many of the larger meters are of the detector type and have been found very inaccurate, so that it is planned to replace them with another type of meter.

In order to remedy the past neglect of this important question, studies are being made of the whole field. The first step was to put on a small trained meter-repair crew to make the rounds of the larger meters and overhaul them, making such repairs as were deemed necessary. The result has been surprising in increased revenues, and it is expected that this repair crew will be made permanent on regular rounds of inspection and test.

All new meters to be installed in Dallas are required to be tapped for a test while in service. Installations are to be required with cut-off valves on each side of the meter, and a by-pass controlled by a locked or sealed valve is under consideration as a requirement. It is felt that this feature, if properly controlled, will be valuable, but it must be carefully handled.

For testing these large meters, suitable type portable test meters will be used. In conjunction with the tapped valve chamber and a short length of hose, it is felt that adequate tests may be made of meters up to 10 inches at least, with the portable type of test meter. As experience has shown a marked gain in registration where accurate meters are being used, it is felt that the small investment required for this testing and repairing is a very worth-while outlay.

H. E. MOORE,
Secretary, Dallas City Water-Works.

Water Rentals Pay for Extensions

THE city of Sioux City, Iowa, has not made a levy for water purposes since 1908, but has had to rely upon collections from water rentals for this purpose, with a few exceptions when water-mains were laid out into new additions. Owners of property in these developments have been charged 8 per cent on the cost of the extensions until such time as the water rentals equaled the cost, or until the amount paid by the property owner equaled the amount of the investment for the extensions.

According to an act approved by the General Assembly of the state of Iowa on April 15, 1929, water-main extensions and assessments for their cost may be ordered only when such extensions have been petitioned for by at least 75 per cent of the owners of the property subject to the assessment, who are residents of the city where the petition is presented.

If the proposed extension is approved by the board of water-works trustees, it may certify the petition, together with its written approval to the council, and the council must then declare in a resolution the necessity for such an extension, designating the streets upon which it is proposed to make the extension and the terminal points, as well as the fact that the private abutting property will be assessed for the cost. The resolution must fix the time for its consideration, when the owners of the property subject to the assessment may appear and make objection to its passage if they wish to do so. Before final action is taken, notice must be given by publication in two consecutive issues of some weekly newspaper published in the city or one of general circulation. If objections to the passage of the resolution are filed by any property owners, final action may not be taken upon it by the council until notice of such objection has been given to the board of water-works trustees, giving it an opportunity to appear before the council in support of its approval of the petition.

The act further states that each city or town may provide by ordinance that the owner of the property so assessed shall be rebated annually at the rate of 10 per cent each of such assessment, plus interest, from water dues payable by the assessed property, until the amount of these rebates equals the amount of the assessment and the interest paid by the owner. After fifteen years from the date of the assessment, all rebate rights are automatically canceled and any assessments not then repaid are not subject to repayment. However, in any city where the water-works is operated under a board of water-works trustees, such an ordinance may not be adopted unless it shall be asked for and approved by the board of trustees.

The council of any city having a population in excess of 75,000 is required to adopt such an ordinance before extending mains and assessing the costs.

PHIL CARLIN,
Superintendent, Sioux City Water-Works.

Majority of Customers Take Advantage of Discount

THE Muscatine, Iowa, city waterworks has 3,500 metered accounts and 1,000 flat-rate accounts. The metered accounts are rendered the first of every month and the flat-rate acounts quarterly.

After the meters are read, the bills are ready for distribution on the first of each month. Part of the bills are mailed and the rest are delivered by the meter readers over the routes they read.

By noon of the second day of each month the consumers have the bills for water used during the past month. If they are paid at the office or by mail on or before the 10th of the month in which the account becomes due, the consumer is required to pay the amount on the bill, which is 10 per cent less than the water rates. Ninety-five per cent of the accounts are paid by the 10th of the month.

WILLIAM MOLIS,
Supt., Muscatine City Water-Works.

No Snow, But Buried Valves

THE city of Tucson, Ariz., has no trouble with valves' being covered with snow, but it is often necessary to locate buried valves.

Where all surface indications or measuring points are obliterated, the main is first located with a wireless pipe finder. The valve location is then approximated. One workman stands at the nearest hydrant or tap and listens with an electric leak locator for sounds made by another workman who strikes the ground with a heavy sledge. When the sledge strikes the ground over the valve, the change in sound indicates that it has been located.

RICHARD BENNETT,
Superintendent, Water Department.

Rates of Depreciation in Spartanburg

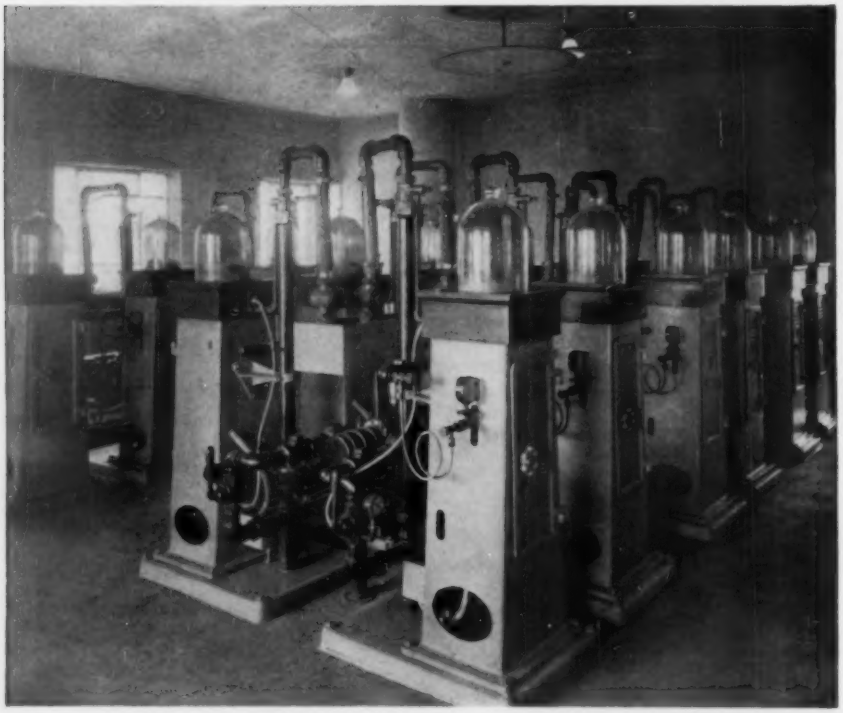
FOR the past ten years Spartanburg, S. C., has financed its distribution water-main extensions from revenue, and plant and feed lines from bond issues. A depreciation schedule, which also includes obsolescence, has been set up as follows:

Plant and trunk lines	1½ per cent per year
Distribution system	2 " " " "
Automobiles and trucks	25 " " " "
Office building	2 " " " "
Office furniture and fixtures	10 " " " "

During 1928 this produced an amount of $37,148.81 to be used in plant extensions and improvements before a profit was shown. This has been found ample to make the necessary advance in distribution in this town of 30,000 population.

R. B. SIMMS,
Superintendent, Spartanburg Water-Works.

LESS THAN 1% FOR MAINTENANCE



20 minutes · · ·
a small wrench · · ·
a screw driver · · ·
to take apart
a W & T unit,
clean and
re-assemble it.

Seven years ago the largest chlorinating installation in the world was made at the Easterly Sewage Disposal Plant, Cleveland, Ohio. In seven years annual maintenance costs have never exceeded 1% of the low initial investment! Today these machines are in perfect working order.

The simplicity of the W & T Vacuum type Chlorinator is largely the reason for this admirable record. A small wrench, a screw driver—and in 20 minutes this machine can be dismantled, cleaned and re-assembled—all ready for duty. No special skill, no technical knowledge is necessary.

Day in and day out, in more than 6,000 American municipalities, W & T equipment is giving this same satisfactory, practically cost-free service.

Our engineers will gladly tell you more about these installations, recommend suitable equipment to meet your specific requirements and to figure for you exact installation and operating costs.

For the sake of safety as well as saving, let our staff be of service. There is no obligation.

WALLACE & TIERNAN CO., Inc.
Manufacturers of Chlorine Control Apparatus
NEWARK, N. J.
Branches in All Principal Cities

A PRODUCT OF

WALLACE & TIERNAN

The Only Safe Water *is a Sterilized Water*

ALSO SEE OUR ADVERTISEMENT ON THE BACK COVER

JOSEPH G. WOOD
Supt., Texarkana Water Corp.
Texarkana, Ark.-Texas
(Appointed 1915)

RICHARD BENNETT
Supt., City Water Dept.
Tucson, Ariz.
(Appointed 1928)

HAROLD J. HUBER
Supt. of Public Works
Lancaster, N. Y.
(Appointed 1929)

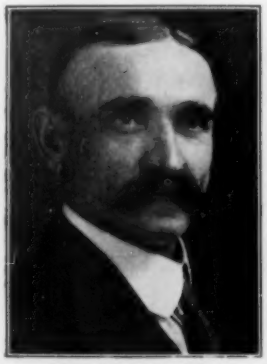
HENRY E. NUNN
Supt., Water Works
Van Buren, Ark.
(Appointed 1925)

WHO'S WHO IN WATER SUPPLY

The 32nd of a Series of Portraits of Water Works Officials Which Has Appeared Monthly Since January, 1928

ROBERT W. AUSTIN
Comsr. of Public Works
Amsterdam, N. Y.
(Appointed 1930)

HERBERT W. PERRY
Supt. of Light, Water & Sewers
Penn Yann, N. Y.
(Appointed 1923)

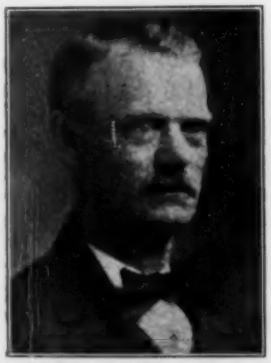


JOHN B. HANEY
Supt., Water Works
Trenton, Mo.
(Appointed 1912)

CHARLES W. BILADEAU
Supt., Water Dept.
Pittsfield, Mass.
(Appointed 1917)

Photograph by Bachrach
LEON A. GOODALE
Water Comsr. & Registrar
Worcester, Mass.
(Appointed 1929)

CECIL S. LYNCH
Chief Engr., Ark. Power & Light Co., Pine Bluff, Ark.
(Appointed 1927)



CHARLES M. DAYTON
Supt., Water Works
Keyser, W. Va.
(Appointed 1924)

EDWARD L. DAY
Mgr., W. Va. Water Service Co.
Princeton, W. Va.
(Appointed 1912)

WILLIAM CREGAN
Water Works Supt.
Youngstown, Ohio
(Appointed 1928)

NICHOLAS A. GILMAN
Supt., Water System
Yakima, Wash.
(Appointed 1930)

PITTSBURGH DES MOINES

This 1,000,000 gallon PDM tank was completed in May, 1930 at West Allis, Wisconsin. It is 65 feet in diameter by 26 feet 1 inch, and the tank balcony is 147 feet 11 inches above ground level

Any Question About Water?

Adequate water supply is a prime necessity for any town or city. PDM clean-cut, modern elevated steel tanks solve this vital question today for thousands of American municipalities.

Pumping into an elevated tank is more economical than "direct pumping" because the pump always works under a uniform load and at maximum capacity. Costs of power and supervision are reduced, as pumping is not required during the entire 24 hours—due to the reserve supply stored in the tank for peak load demands and for constant fire protection.

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Sewage Treatment Means Clean Streams

SEWERAGE AND SEWAGE DISPOSAL

Imhoff Tank Troubles in a Cold Climate

THE mean annual temperature at Laramie, Wyo., which is situated at elevation 7160, is 40.8 degrees Fahrenheit, and the monthly means range from 21.8 degrees in December to 69.2 in July. The mean minimum temperature ranges from 10.7 degrees in December to 48.5 in July, with an annual mean of 28.2 degrees. Records indicate that freezing temperatures may be expected at any time of the year.

The sewage is rather dilute and its temperature seldom exceeds 50 degrees. The digestion capacity in the Imhoff tank amounts to a little over two cubic feet per capita, which is of course too low for these conditions, and thoroughly digested sludge has never been produced. The open sludge drying beds have never been a success, on account of the character of the sludge and the frequent freezing, but the low temperatures and the exceedingly dry climate have been favorable factors in keeping down odors. The sludge is now pumped approximately 4,000 feet to a 10-acre tract, where it is wasted on the surface. This seems to be satisfactory as a temporary solution to the problem.

The Imhoff tanks were designed for a population of 8,000, but are taking care of the sewage of 9,000. The plant was constructed in 1923, at a cost of $40,000, the total value of the plant and farm being $156,634. The cost of operating labor and supervision for 1929 was $1,000, power cost $200, and maintenance and repairs $300, making a total cost, exclusive of fixed charges, of $1,500, or $1.64 per million gallons.

F. M. VEATCH,
Black & Veatch, Consulting Engineers, Kansas City, Mo.

The Control of Algae and Filter Flies in Trickling Filters

AT Canton, Ohio, it has been found possible to control the algae growth on the top of sprinkling filters by allowing the filter to remain dry for 24 hours once a week. To control filter flies at Canton, a satisfactory method has been developed in flooding the filters for 24 hours once each 11 days during the warmer months of the year. This also has caused a decided sloughing-off of the organic matter from the slag medium and has resulted in keeping the filters nearly as clean as when they were first placed in operation.

Based on my experience, it is believed that excessive amounts of organic matter within the filter tend to retard the development of the filter fly.

It is not believed possible to clean all filters by drying and flooding, the success of this method depending much on the size of the aggregate. If the aggregate is small and nests and hence has small voids, the filter may clog rapidly and drying and flooding are not effective. Where the aggregate is well graded and contains but little material smaller than 1½ inches in diameter, however, these methods have proved effective.

CHARLES C. HOMMON,
General Superintendent, Municipal Sewage Treatment Plant.

Sewage Irrigation at Tucson, Ariz.

THE experience with sewage irrigation at Tucson, Ariz., is interesting, particularly as water for irrigation is an important problem in the Southwest.

At Tucson approximately three million gallons of settled sewage daily from a population of approximately 40,000 was used during 1929 to irrigate approximately 300 acres of cultivated land in the Santa Cruz River Valley. This system of disposal has its shortcomings, of course, but the balance sheet for 1929 prepared by George T. Grove, City Engineer, shows that a net profit of a little over 2½ per cent on the total investment was realized, making it an economical method of sewage disposal.

The operating cost for 1929 was $23,475.83, being $8,614.39 for interest on the investment of $156,634.34 at 5½ per cent; $3,285.15 for plant operation; and $11,575.79 for farm operation. The plant operation item is made up of a charge of $1,520 for the operator, who works 6 hours per day, $698.24 for power for the clarifiers and the sludge pump, and $1,066.91 for miscellaneous supplies, repairs, auto expense and cost of experiments. This represents a cost of approximately $3 per million gallons of sewage treated.

The value of crops for 1929, based on receipts and on the market value of produce on hand at the end of the year, was $27,447.82, making a net profit of $3,971.99.

The sewage is received at the farm in a septic condition, on account of its relatively high temperature of from 70 to 75 degrees and to four miles of sluggish travel in an outfall sewer. Hydrogen sulfide is quite pronounced in the settled sewage, but is absent after a mile of travel in an open irrigation ditch. Chlorination has been tried experimentally at the plant, but the demand is very high and the cost out of proportion to the benefits. Further experiments are to be made as soon as arrangements for water pressure near the upper end of the outfall sewer can be made. The aeration of the settled sewage for a short period before it enters the irrigation ditches has also been suggested, but as the odor nuisance has been slight, no great expenditure has been warranted.

The sludge from the two settling tanks or clarifiers is digested in a plain tank which has a capacity of 95,000 cubic feet, and no trouble has been experienced in getting well-digested sludge. It has been found advisable, however, to run the overflow from the digestion tanks onto two of the sludge-drying beds in rotation, rather than to return it to the settling tanks, since this practice increases the hydrogen sulfide in the settled sewage.

Experiments have been conducted on the fertilizing properties of the sludge from this plant and on the proper crops. The sludge has been applied both in the air-dried form from the sludge beds and as liquid sludge from the digester. Definite results are not yet available, but the indications are that better results can be obtained from the air-dried sludge.

F. M. VEATCH,
Black & Veatch, Consulting Engineers, Kansas City, Mo.

Tractor Used for Variety of Purposes

THE city of Burbank, Calif., recently purchased a crawler tractor equipped with a Muskogee pipe-handling attachment in which the standard boom has been replaced with a special telescoping boom made of Shelby tubing. With this boom extended to its maximum length of 25 feet, it is possible for the outfit to handle and erect the longest poles used in power line construction.

This Model DH Trackson McCormick-Deering tractor unit is also used for pipe line work and for backfilling trenches with a bulldozer after the pipe has been laid, as shown in the illustration.

T. R. MINI,
City Engineer.

TRACKSON CRAWLER TRACTOR WITH BULLDOZER, USED IN BACKFILLING SEWER TRENCHES IN BURBANK, CALIF.

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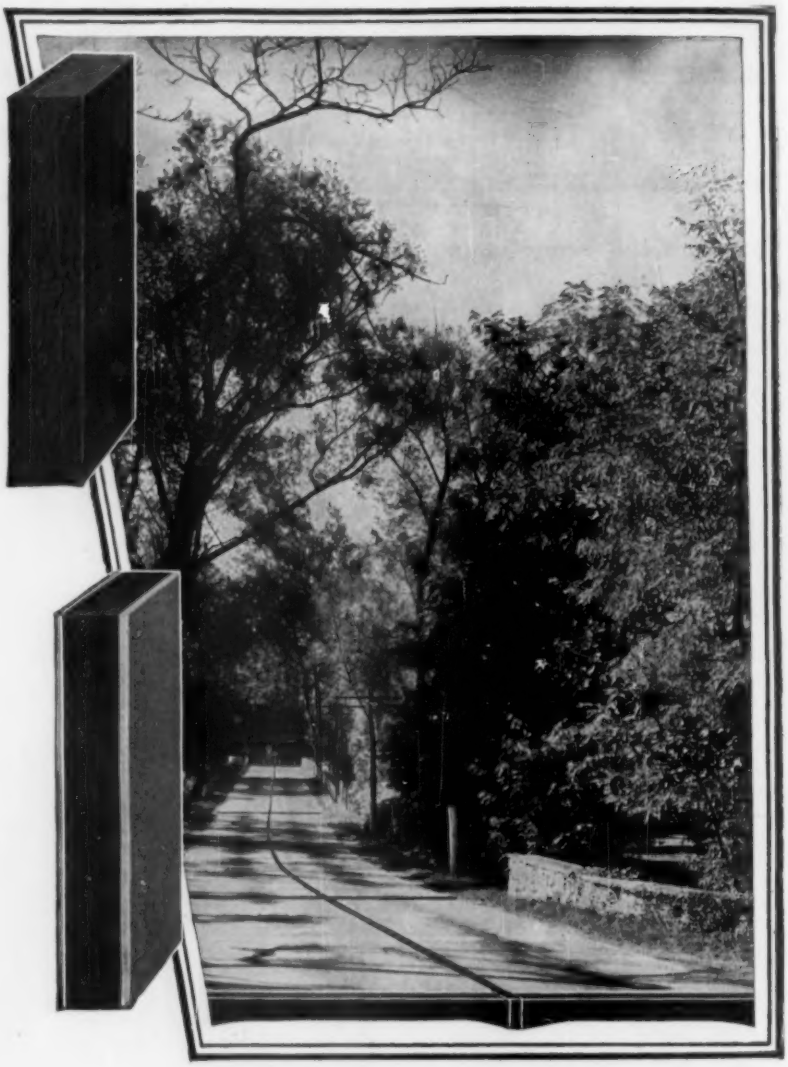

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Construction and Maintenance

ENGINEERING AND HIGHWAY DEPARTMENTS

CHARLES E. GRUBB, EXECUTIVE ENGINEER, COUNTY HIGHWAY OFFICIALS DIVISION, AMERICAN ROAD BUILDERS' ASSOCIATION

Charles E. Grubb Made Executive Engineer of County Highway Officials Division

THE American Road Builders' Association has announced the appointment of Charles E. Grubb, formerly County Engineer of New Castle County, Delaware, as Executive Engineer of the County Highway Officials Division of the Association. Mr. Grubb is a past president of the County Highway Officials Division, holds a Bachelor of Science and an honorary Civil Engineering degree from the University of Delaware, and is a member of the American Society of Civil Engineers and of various highway associations and committees. He is Secretary of the Regional Plan Commission of Delaware and a Director of the Delaware Automobile Association and of the Delaware Safety Council.

In discussing the problems of the County Highway Officials Division, Mr. Grubb said:

"Rural highways were, in the beginning, built and financed by farmers. Now the cities contribute the great majority of motorists who use the highways, and the states are finding it more necessary each year to consider extension of financial aid to counties for the completion of the secondary road systems. States which are already working on this problem are New York, Illinois, Missouri, New Jersey and Pennsylvania. More states will take up the question this year.

"The program of work among county highway officials this year by the American Road Builders' Association includes study of the question of financing county highways, the elimination of unimportant highways and the relocation of secondary highway routes for greater efficiency and safety, the best method of maintenance and construction of low-cost roads and bridges, the resurfacing and widening of highways which are inadequate for present-day traffic, and the maintaining of earth and traffic-bound roads."

A summary of county expenditures for construction and maintenance includes figures just received from 1,066 counties, slightly more than one-third of the total number, and shows an interesting increase of expenditures for this year over those for 1929. The counties reporting, which is a fair estimate of the counties that have well-organized county highway commissions, contemplate expenditures for highway and bridge construction in 1930, amounting to $195,157,725, as compared with an expenditure of $117,059,754 in 1929. For maintenance, the 1,066 counties will expend $98,412,832 this year, as against $94,249,810 last year.

Filling Cracks and Joints in Concrete Pavements

ACCORDING to a report of Subcommittee No. 4 on Pavements, of the American Road Builders' Association General Committee No. IV on Maintenance, of which Hal G. Sours, County Engineer, Summit County, Akron, Ohio, is General Chairman, the principal job in the upkeep of concrete pavements is the filling of cracks and joints.

Special care is stressed in completely cleaning the joint of all hard material, with particular attention to the part at the edge of the pavement. It is usually necessary, in order to do a thorough job, to dig away shoulder material. Neglect of this precaution may cause corner breaks and longitudinal cracks.

It is becoming quite general to use compressed air for the blowing out of small particles and dust from the crack or joint.

A hot shovel used in removing excess filler improves the looks and riding qualities of the pavement.

There appears to be much merit to the practice of using a heavy asphalt or tar filler for large cracks and expansion joints, and cutback bituminous materials for small cracks. Thus two operations are required for filling all cracks and joints.

The practice of working one-half the road at a time not only is a convenience to traffic, but makes for greater efficiency, as the men do not have to be on the lookout so much for passing vehicles.

Connecticut reports better results for sealing surface defects by using asphalt rather than tar and prefers cutback asphalts containing high volatile oils.

Care must be used not to overheat (too hot or too long) the bituminous material. This is frequently the cause of coking, resulting in brittle material, and the job must soon be done all over.

CHAIRMAN, S. A. GREEN,
County Roads Engineer, Baltimore County, Towson, Md.

Resurfacing Topeka with Rock Asphalt

IN every city there are streets which parallel the conditions encountered and overcome in Bristol, Tenn. Anderson Street, Bristol, Tenn., was paved December, 1924, with concrete curb and gutter, 5-inch concrete base and 2-inch Topeka top. After about five years' service the surface had cracked so badly that the contractor was called on to carry out his guarantee. The cracks, if left unsealed, would have permitted the entrance of surface water and would have soon raveled into holes; meaning an unsatisfactory street, costly maintenance and, in a short time, complete new construction. A thin wearing surface of Kyrock was put on in August and September, 1929, to seal the cracks and save the top from further disintegration. It was rolled with a 3-wheel 10-ton roller and bonded perfectly to the old Topeka surface. It is now smooth and satisfactory and, from all appearances, will wear indefinitely. In addition, it has very materially improved the appearance of the street.

G. P. BEIDLEMAN,
Commissioner of Streets and Public Improvements.

ANDERSON STREET, BRISTOL, TENN., AFTER REPAVING WITH KYROCK

When Will YOUR City Soften Its Water?

Exterior view of municipal water-softening plant owned by City of Austin, Texas, equipped by International Filter Company, Chicago, Ill.

THE progressiveness of Texas cities in the construction of modern, municipal water-softening plants is typified in the above view of the plant owned by the City of Austin.

Here lime and soda-ash are the principal reagents which contribute to the health, comfort and economy of its 60,000 citizens.

Municipal authorities in 110 other towns and cities throughout the United States are keenly aware of the civic asset of a water-softening plant. When will YOUR city join the increasing list of progressive communities?

When the tremendous economic waste which results annually from the use of hard water is fully recognized by the general public and manufacturing industries, there will be a widespread movement in favor of its elimination.

To every taxpayer and housewife, soft water will bring longer life to fabrics and linens, lowered laundry and soap costs, reduced repairs to heater coils and plumbing fixtures and decreased fuel bills of 5 to 10%.

No municipal investment can bring greater or more direct returns to its citizens than a water-softening plant, the initial cost of which is quickly returned in savings to property owners and industries.

Many municipalities already filtering their water supply can soften it at but slight additional cost. If the surface supply requires filtration and it is high in carbonate hardness, lime will serve both as a softening and purifying agent. Lime is an effective germicide and without question a most economical chemical.

Officials interested in securing further information on water softening and purification are requested to write the National Lime Association.

NATIONAL LIME ASSOCIATION

An organization of leading lime manufacturers formed to encourage a better appreciation of the economic value of lime in all its uses.

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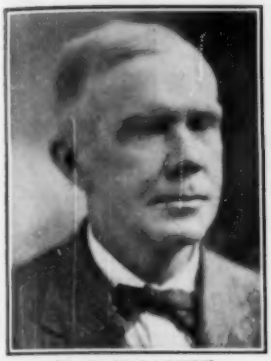
Why not remember to mention THE AMERICAN CITY?



W. B. McGARVEY
City Engineer
Galveston, Texas
(Appointed 1929)

O. D. HENRY
County Engineer, Lyon Co.
Emporia, Kans.
(Appointed 1927)

DAVID L. ERICKSON
City Engineer
Lincoln, Nebr.
(Appointed 1923)

FRANK E. HUNTINGTON
City Engineer
Amsterdam, N. Y.
(Appointed 1924)

CHARLES M. HARTSOCK
County Engineer, Marion Co.
Marion, Kans.
(Appointed 1924)

WHO'S WHO IN CITY & COUNTY ENGINEERING

One of a Series of Portraits of Engineering Officials Which Has Appeared Monthly Since April, 1928

BLAIR BOYLE
County Engineer, Cowley Co.
Winfield, Kans.
(Appointed 1926)

C. L. WATKINS
City Engineer
Roanoke, Va.
(Appointed 1922)

WALTER L. ANDERSON
County Engineer, O'Brien Co.
Primghar, Iowa
(Appointed 1922)

J. P. FERRILL
City Engineer
Tyler, Texas
(Appointed 1926)

LEA ROWLAND
City Engineer
Roswell, N. Mex.
(Appointed 1919)

RALPH H. GREENWOOD
County Engineer, Fremont Co.
Sidney, Iowa
(Appointed 1927)

JUL. L. MUELLER
City Engineer
Maplewood, Mo.
(Appointed 1927)

LANDER P. THROGMORTON
Superintendent of Streets
Paris, Tenn.
(Appointed 1922)

D. L. LEWIS
City Engineer
Fort Worth, Texas
(Appointed 1910)

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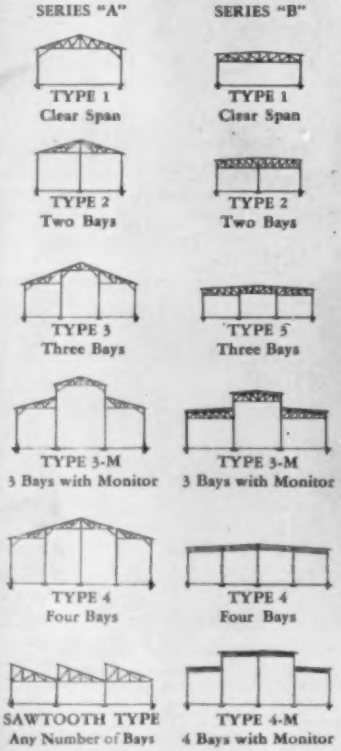

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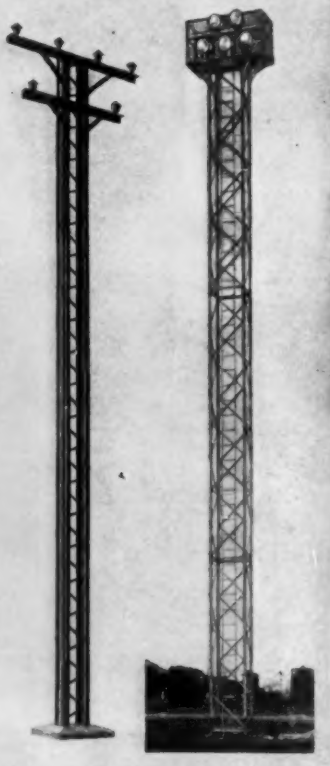

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POINTS of POLICY of PLAYGROUND and RECREATION DEPARTMENTS

Recording Recreation Attendance

SOME standard plan for recording playground attendance is of the utmost importance to those whose business it is to "sell" the recreation program to the public, Richard Hayden, Playground Supervisor and Physical Education Director of Rutland, Vt., told the recent New England Conference of Recreation Workers. He added the convincing and altogether logical reason that business men and others whose interest is important to the local work have a way of noting comparative attendance records and costs from different cities as reported by such organizations as the National Recreation Association. Unless a uniform method of arriving at attendance is used, the participants and per capita cost figures are meaningless.

Mr. Hayden explains that it is virtually impossible to keep actual individual record of the comings and goings of children on a playground of any size; that many systems are in use, most of them so inadequate as to be almost valueless; and that, although there is a great difference of opinion on the subject, he believes the best method is that described below, now in effect in a good many places:

"Unless there is some way to check, as in a swimming pool or place where admission is charged, figures are taken at the height of each session, usually at 10:30, 3:30 and 7:30, and the total is either doubled or added to by a certain per cent. This method is fairly justifiable, because many children come for only a short time. It might be more widely adopted.

"Meanwhile, I want to emphasize the importance of following whatever system is adopted, and of making an honest, accurate count each time. Only in this way will year-by-year figures be accurate."

The Cleveland Park System Progresses

THE basic plan for the major park system for Metropolitan Cleveland contemplates an approximate total of 15,000 acres in reservations and connecting parkways. The Board of Park Commissioners has taken recent important steps to round out this system, with the result that, already, title is acquired to 9,022 acres, and negotiations under way, options secured, or appropriation proceedings started should add another 1,400 acres. The objective of the Board for the current year is a system well over two-thirds realized.

Community Celebrations

THE park and recreation departments of the country are doing a big job in getting people of all ages and conditions together for large-scale celebrations—patriotic celebrations on national holidays, and special community affairs—and in fostering community-mindedness thereby, if rteurns from the recent questionnaire sent out by THE AMERICAN CITY may be accepted as representative. All the major holidays are occasions of such events in many places, as are also Hallowe'en and Children's Day. Several cities report that some one day is given particular prominence in the year's program. In addition to the departments that sponsor these programs, are others in places both large and small, which turn over their facilities to be used in such programs handled by other organizations.

Special community play and recreation days are becoming a regular observance in an increasing number of cities of all sizes.

Miniature Golf and Public Policy

MINIATURE golf courses, commercially operated, have sprung up all over the country almost over night, and with them has sprung up a crop of municipal problems. Among them are these:

What rent shall be charged on public property leased for this use?

What license fee shall be collected for such installations when they are on private property?

What restrictions shall be imposed upon their location?

What restrictions shall be imposed upon night playing and Sunday playing?

With the idea of presenting, in one of its early issues, a résumé of current practice in the matter, THE AMERICAN CITY, last month, asked the city managers of the country for a statement. Already managers of 190 cities have replied, 45 of them reporting no courses. Of the 145 others, one city, Kansas City, Mo., is shown to have "about 60" courses located on private property. Los Angeles, Calif., and Wichita, Kans., each have 31 courses, located on private property, while Cleveland, Ohio, has about 30 on private property, and 3 other commercial courses located in public parks. A number of others report as many as nine or eleven courses in operation.

In Cleveland and in St. Marys, Kans., 10 per cent of the gross receipts is charged on courses on public property. Wichita Falls, Texas, is carrying on negotiations to obtain 15 per cent of the gross receipts of courses on public property. Morris, Minn., charges only $4 a year rental for such a course; El Reno, Okla., charges $100, Atchison, Kans., $150, and Rochester, N. Y., $300 per year per course. In Alexandria, Va., and Bluefield, W. Va., $50 per month rental is charged for use of public property for a course, while Bristol, Va., charges $600 per year for one.

Fifty-seven cities report that courses are licensed. The fees range from $1.00 per annum in a small municipality to $250 per annum in a large city. Three cities charge $5; eight, $10; fourteen, $25; four, $50; and 8, $100.

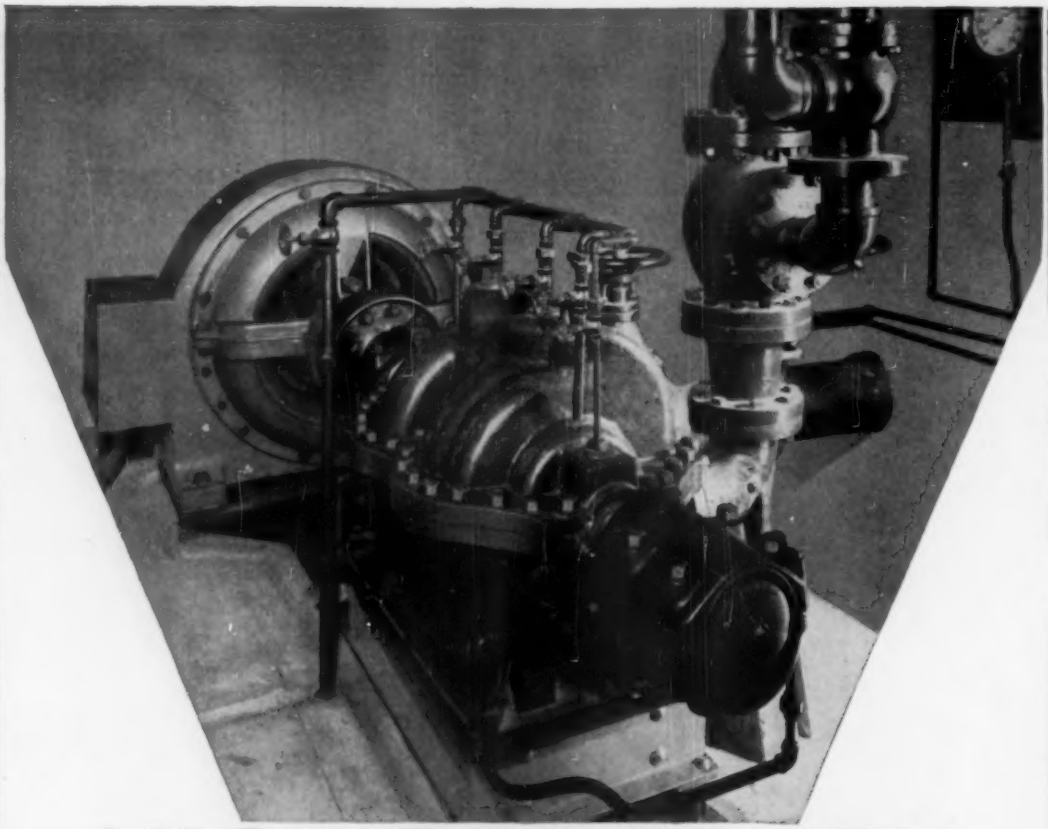
Of the cities that report having issued permits for courses in residence use districts, two—Flint, Mich., and Hamilton, Ohio—require that the permission of surrounding property owners be obtained before installation, and four cities report such permits issued on a temporary basis. In Glendale, Calif, and in Kenosha, Wis., miniature golf courses must locate in commercial districts.

Fifty-three cities report restrictions on Sunday playing and night playing, and a number of others state intentions of adopting such restrictions. In 25 cities Sunday playing is summarily prohibited. In 12 others, Sunday opening and closing hours are fixed.

In 26 cities courses have been the source of noise nuisance complaints, because of their late hours or Sunday hours. A course in a residential section of Xenia, Ohio, was closed by injunction and subsequently moved outside the city limits. But another is being opened and the city is taking action to license and control it. Five courses have voluntarily regulated their closing hours to meet objections.

In Roanoke, Va., a test case was brought to prove the validity of the Sunday closing restriction, and the jury upheld the defendant and Sunday play. Parking problems are mentioned as having arisen in three cities as a result of the new golf courses. Lights, hot dog stands and gambling have also led to complaints. On the other hand, from Dania, Fla., comes the suggestion that "Miniature golf courses are a means of beautifying vacant lots which heretofore have been overgrown with weeds."

The most striking fact evident in these returns as a whole is this: the development and the problems involved are so new that many officials express themselves unable to give opinions as to the success of the courses, or policy as to their control. A copy of the Kansas City, Mo., ordinance, regulating the operation of miniature golf courses, is available for any reader of THE AMERICAN CITY on application. A large number of city managers say that more information is sought—as to license charges, restriction of hours, and the matter of procedure in cases of complaints. Notably reports show that restrictive measures (where none exist) are about to become necessary or are already being worked upon.



HIGH PRESSURE MULTI PLEX PUMPS

Byron Jackson Multiplex Centrifugal Pumps for many years have been regarded as standard equipment for water works pumping where high pressures are required. The 300 h.p. unit shown here delivers 1000 g.p.m. against a pumping head of 300 lbs. per sq. in. This installation is interesting in that the pump is required to operate against a 22-inch vacuum on the suction.

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METHODS and COSTS of REFUSE COLLECTION AND DISPOSAL

Jackson's New Incinerator

WHEN Jackson, Miss., decided to build a new incinerator for its garbage and refuse, the city officials made a very careful study of the needs and inspected various types of furnaces throughout the United States. They finally decided upon a two-furnace circular type Nye incinerator, as being the most satisfactory for local requirements.

This plant was built in January, 1929, at a total cost of $45,000 and has a guaranteed capacity of 8 tons per hour. The cost of operation during the first year, including a long period of very wet weather, was as follows:

Superintendent's salary	$145	per month
Four laborers	325	" "
Depreciation on plant	50	" "
Lights, etc.	30	" "
	$550	

About 1,332 tons of mixed garbage and refuse were burned per month at a cost of 41 cents per ton.

The plant is attractive in appearance, and the grounds will be a distinct asset to the park system of the city. Its operation has been satisfactory and it has not been necessary to push it to properly care for all garbage, refuse and dead animals collected in the city.

The 100-foot radial brick stack gives sufficient draft without throwing off odors or smoke, and it is very seldom necessary to use the blowers with which it is equipped.

J. J. HALBERT,
City Engineer.

Truck and Trailer Collection in Freeport

THE city of Freeport, N. Y., has recently changed its collection methods from horse-drawn trailers to truck collection. The city is now served by four 10-yard trucks, and in the residential sections a trailer is drawn to take care of the ashes, cans and non-combustible material. Freeport has a population of approximately 20,000 and an area of 3 square miles. The residence section is covered three times each week, garbage being taken from the rear of the houses, and the business section is covered daily, at a total cost of approximately $40,000.

The incinerator, which handles 30 to 40 tons per day in summer and 25 to 30 tons per day in winter, is reached by a haul of one mile after collection. The plant was built in 1927 and cost, including the site, $67,000. About 7,000 tons of garbage and rubbish were incinerated during 1929 at an average cost of $1.42 per ton.

Collection and disposal are placed in the annual budget and financed through taxation. Approximately $2,400 per year is realized through the sale of bottles and junk.

LAWRENCE L. LUTHER,
Manager, Department of Sanitation.

Incineration Economical in Lackawanna

IN 1921, Lackawanna, N. Y., built its garbage incinerator at a cost of $23,275.75 on a plot of land which cost the city $14,000. This plant handles approximately 22 tons of mixed garbage and rubbish per day in summer and 18 tons per day in winter, the cost of disposal being approximately $5,475 per year. Of this amount, $3,900 is for wages and $1,575 for auxiliary fuel and other operating costs. The cost of collection and disposal is financed through general taxation.

The city has a population of 23,000 and an area of 5.86 square miles. Approximately 6,000 tons of garbage and refuse are collected per year, or about 15 loads per day, using five 3-cubic-yard wagons. Ten men and two inspectors are employed the year round for collection, covering the residence district once a week and the business section twice weekly. Collection costs the city approximately $24,000 a year, being $22,000 for wages and $2,000 for maintenance and operating costs.

T. N. McCORMICK,
City Engineer.

Cleveland Motorizes Collection

WHEN motorization of garbage collection equipment was first tried in Cleveland, Ohio, it was in the nature of a very careful test. Various types of trucks and hoists were used, and also trucks of different capacities. After most exhaustive tests, St. Paul underbody hydraulic hoists were selected, and the city has just purchased five 5-ton dump-trucks, bringing the number used in garbage collection service to 43. It is expected that 15 more 5-ton trucks will replace the remaining 70 wagons now in use, to complete motorization, which is effecting savings of about $11,455.20 per year per truck on a ton-mile basis where 5-ton trucks are used.

The longest haul is about 15 miles and the shortest is less than a mile. It is estimated that the average loaded haul is about 8 miles with wagons and 12 miles with trucks. The trucks are assigned to the longest hauls, with the exception of three routes at the city limits, where wagons are used because of bad roads and hauling conditions. All garbage is hauled to a central collection station and, after being weighed, is dumped into railroad gondolas from a dumping platform. The trucks dump directly into the cars, but the wagons must be dumped into a hopper conveyor which carries the garbage to the cars.

Each vehicle must keep its particular route clean, and the day's work ends when the route has been covered. The drivers of the wagons work alone, also doing the collecting. Trucks are manned by a driver and from one to four collectors. The normal crew is a driver and three collectors, the driver helping to collect where possible. Drivers of trucks are paid $7.60 per day, collectors $4.75 per day, and wagon drivers $5.25.

As the trucks come into the central station, they are weighed and the time recorded. By means of these records and complaints phoned to the superintendent, he is able to keep close control over each district and route. Collecting is done about 300 days a year. It is estimated that there is about ¾-pound of garbage per day per person, but this varies with the season.

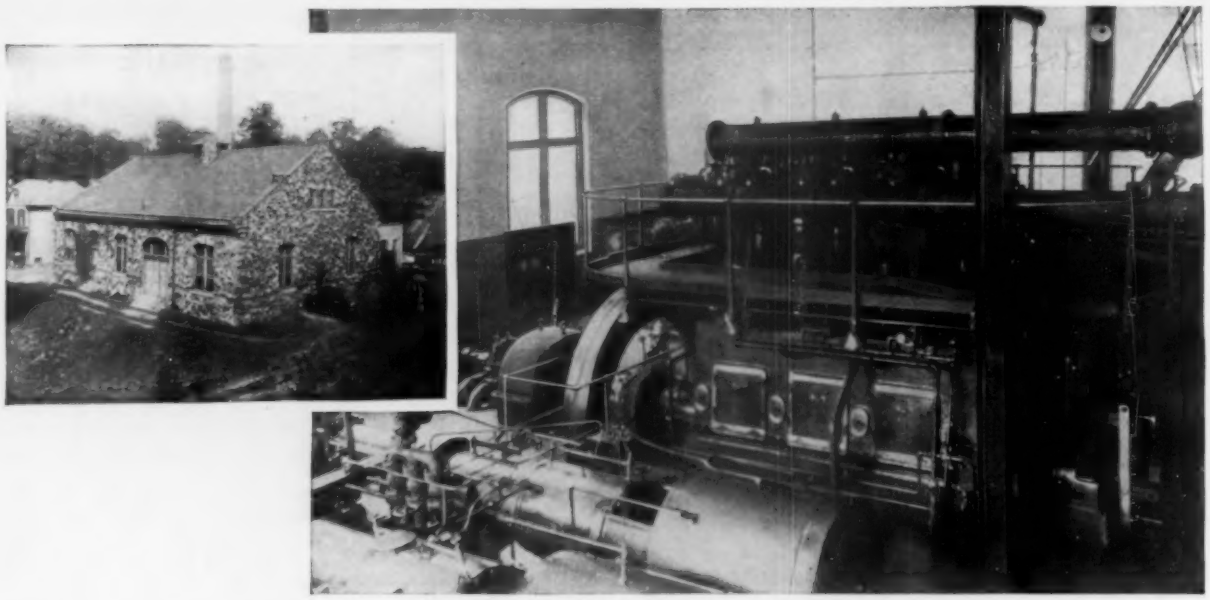
The following table shows costs in detail per 5-ton trucks and per wagon. These costs are based upon the records and are developed in accord with the experience of the operating men in the department.

COMPARISON OF OPERATING COSTS — 2-TON WAGONS VS. 5-TON TRUCKS*

Operating data—	Wagons	Trucks
Total collected per day per vehicle, lbs.	4,521	21,212
Total collected per year per vehicle, 300 day year, tons	678	3,182
Average haul, miles	8	12
Ton miles per year	5,424	38,184
Fixed Charges—		
Depreciation:		
Horse, $300.00 ÷ 4 years	$ 75.00	
Wagon and harness, $900.00 ÷ 10 years	90.00	
Truck, $5,000.00, $300.00 for tires, 10 years		$470.00
Average interest at 6%:		
Horse, 5/4 × $300.00 × .06/2	11.25	
Wagon and harness, 11/10 × $900.00 × .06/2	29.70	
Truck, 11/10 × $4,700. × .06/2		155.10
Upkeep horse and wagon, including repairs, supplies, feed, veterinarian, shoes, harness, etc., average from records	1,000.00	
Repairs and maintenance truck, average		200.00
Total fixed charges	$1,205.95	$825.10
Annual Operating Costs—		
Fixed charges from above	$1,205.95	$825.10
Tires, life 3 years — cost $300.00		100.00
Gas, 9 gal. × 300 days × $.16		432.00
Oil, 1 gal. × 300 days × $.30		90.00
Drivers, at $5.25 and $7.60	1,575.00	2,280.00
Collectors, 3 × $4.75 × 300 days		4,275.00
Total annual cost per unit	$2,780.95	$8,002.10
Cost per ton	4.10	2.51
Cost per ton mile	.51	.21

Savings—	Per Ton	Per Ct.
Per ton, $4.10 ÷ $2.51	$ 1.59	39%
Per ton mile $.51 ÷ $.21	.30	59%
Per year on each truck, strictly tonnage basis 3,182 tons × $1.59	5,059.38	
Per ton on each truck, ton mile basis 38,184 ton miles × $.30	11,455.20	
Return on Added Investment—		
Investment in truck less tires	4,700.00	
Investment in horse and wagon	1,200.00	
Added investment	$3,500.00	
On ton-mile basis: ($11,455.20 × 100) ÷ $3,500.00	328%	

* Motorization is proceeding on 5-ton truck basis. —From a survey prepared by A. C. Nielsen Co., Chicago, Ill., for the St. Paul Hydraulic Hoist Co.



15% Greater output at less than half the operating cost of the old steam plant

—A performance that should interest owners of small pumping stations

THE Pocantico Hills, N. Y., plant of New Rochelle Water Company, with an output of about 3,000,000 gallons per day, contained three 125-hp. tubular boilers and two duplex triple-expansion pumps. This equipment was in very good condition but operating costs over a five-year period averaged $28,944 annually.

At the best obtainable current rate, the estimated annual operating cost for motor-driven centrifugal pumps was only about $184 less, whereas a reduction of $12,214 was indicated for a centrifugal pump driven by Diesel engine. These figures do not include fixed charges, but even with these added in liberal amount, a Diesel plant could be obtained for $36,500 less than the expenditure justified by the calculated saving.

On the strength of this showing, a centrifugal pump driven through step-up gears by 338-hp. McIntosh & Seymour Diesel Engine was installed early in 1928. The installation also included a 25-kw. generator connected to the pump shaft to furnish current for low lift pumps, lights, etc.

After the Diesel-driven pump had operated one year, 923 million gallons of water had been sent out, instead of the 800 million gallons originally estimated upon, yet **the operating costs were 17 per cent less than the original Diesel estimate, and $15,136, or 52 per cent less than the annual average over five years for the old steam plant.**

McIntosh & Seymour Diesel Engines have been developed to an efficiency that leaves no question as to superiority in small pumping plants and to a dependability and operating economy that make maintenance and repairs practically negligible in the annual summation.

Ask for literature and let our Engineers submit cost and performance data

McINTOSH & SEYMOUR CORPORATION, *Main Office & Works: Auburn, N.Y.*

Division of American Locomotive Company

New York	Kansas City, Mo.	Jacksonville, Fla.	San Francisco, Cal.	Houston, Tex.
30 Church St.	1016 Baltimore Ave.	412 Bisbee Bldg.	514 Matson Bldg.	2703 Esperson Bldg.

McINTOSH & SEYMOUR DIESEL ENGINES

During August we hope you will remember to mention THE AMERICAN CITY

"KEEP YOUR STREETS CLEAN"

ITEMS ON STREET CLEANING AND SNOW REMOVAL

More About Street Sanitation Standards

AT the annual conference of the International Association of Street Sanitation Officials, to be held this year in Louisville, Ky., on October 8, 9 and 10, there will be presented for adoption the first set of uniform standards that municipal sanitation officials have ever had put before them. These standards will cover such municipal jobs as garbage and refuse removal, snow-plowing, and street and catch-basin cleaning, and their adoption will make it possible in the future for all cities to keep records on a more nearly similar basis.

It is expected that the Association's Committee on Measurement Standards* will present the curb-mile as the basis for future gaging and measuring of street cleaning, as it is believed this method is more accurate. When machines are used, the committee will recommend measuring the miles a machine runs parallel to the curb; and where hand cleaning or flushing is done, the plans call for multiplying the length of the street by two to get the number of curb-miles.

In the case of catch-basin cleaning, it is likely that the committee will present cubic yards as the standard, and in the refuse removal field, tonnage is expected to be the unit of measurement.

The Association plans to issue a manual for the guidance and instruction of all who are charged with municipal sanitation work. This manual will serve to aid officials in planning, supervising and controling their departmental work on the basis of the uniform standards. It will also prove valuable in preparing budgets and appropriation estimates, will present methods of keeping the public advised of department activities, and will make it possible for the department head to compare his operations with those in other cities on a more satisfactory basis than is now possible.

*The principles on which the Committee's final report will be based were given on page 21 of the July issue.

Estimating the Cost of Snow Removal

FACTORS entering into the cost of snow removal from roads and highways are outlined in a report of the Subcommittee No. 6 on Snow Removal of the American Road Builders' Association General Committee No. IV on Maintenance, of which Hal G. Sours, County Engineer, Summit County, Akron, Ohio, is General Chairman.

The report remarks that estimating the cost of snow removal is like guessing the number of days it will rain next month.

Anything that tends to keep down wind velocity over large areas reduces its power to make drifts and keeps down the cost of snow removal. This condition exists in wooded areas, and in rolling countries. In both cases the wind velocity on the ground is less. Through timberland there are no drifts, while in rolling country snow tends to store behind cut banks and blow off the fills.

Wet snow costs more to handle than light, fluffy snow, in some cases several times as much.

The direction of the wind is the biggest factor in snow-removal cost. One authority says, "It has been found that a wind parallel to the road causes about twenty per cent less drifting than a quarter wind, and about forty per cent less than a cross wind." If during any particular storm the wind changes after plowing has been completed, the whole job must be done over at extra expense.

Temperature vitally affects snow removal. It has been pointed out that there is a critical temperature between 20 and 22 degrees, above or below, which increases cost of removal. The explanation is that below this critical temperature drifting increases out of proportion to the advantage gained by lighter snow; and above it, although drifting decreases, this is more than offset by the greater difficulty of moving heavier snow.

Data compiled by the U. S. Bureau of Public Roads from figures submitted by the 36 so-called snow states on the 100,000 miles kept open, indicate an average cost of $40 per mile per season.

CHAIRMAN, R. WOLFANGLE,
County Engineer, Ramsey County,
St. Paul, Minn.

Bakersfield, Calif.

BAKERSFIELD, on the Kern River, about 100 miles northwest of Los Angeles in the southern part of the San Joaquin Valley, has a population of 30,000. With a force of six men, three of whom work only part time, and three Elgin sweepers, an area of about 3,700,000 square yards of streets is cleaned. The street-cleaning appropriation for 1929 was $12,000. The table below gives street-cleaning costs, month by month, for 1929.

In 1928, the total mileage cleaned was 16,894 at $0.8104 per mile, or a total of $12,973.46.

Month	Mileage	Labor: Operating	Labor: Repairs	Broom Repairs	Replacements	Oil and Gas	Labor Pick-up	Total
January	1,375	$419.25	$72.00	$42.50	$166.62	$85.06	$187.50	$972.93
February	1,260	378.00	54.00	22.50	345.31	72.51	157.50	929.82
March	1,377	417.00	57.00	22.50	198.87	56.28	176.25	927.90
April	1,225	361.50	84.00	27.50	75.45	56.28	150.00	754.73
May	1,520	456.00	36.00	32.00	269.86	66.98	210.00	1,070.84
June	1,168	357.00	33.00	25.00	188.74	51.68	172.50	827.92
July	1,040	312.00	24.00	22.50	117.50	46.07	150.00	672.07
August	1,540	464.00	42.00	37.50	172.27	73.44	202.50	991.71
September	1,374	414.00	48.00	37.50	392.85	62.18	180.00	1,134.53
October	1,424	438.00	60.00	45.00	447.78	64.40	195.00	1,250.18
November	1,377	420.00	54.00	32.50	141.96	70.30	180.00	898.76
December	1,288	414.00	78.00	40.00	684.32	69.59	180.00	1,465.91
Total	15,968	$4,850.75	$642.00	$387.00	$3,101.53	$774.77	$2,141.25	$11,897.30

J. HOLFELDER,
City Engineer.

Oxnard, Calif.

OXNARD is a city of Ventura County midway between Los Angeles and Santa Barbara and 4 miles from the ocean. It has a population of 7,500. Five men working part time are employed in keeping 9,975 square yards of streets clean, using one truck and hand brooms and a sweeping attachment to a Fordson tractor. The 1928 and 1929 appropriations for street cleaning were $3,000. For 1930, this has been raised to $3,200.

E. O. IMUS,
City Engineer.

Hoquiam, Wash.

THIS city of 17,000 population is situated on Grays Harbor at the mouth of the Hoquiam River, 12 miles from the ocean, adjoining the city of Aberdeen on the west. Five men and a foreman are employed for cleaning the 300,000 square yards of street, using a rotary street broom mounted on a Fordson tractor, and a motor street flusher. For 1929 the cost of cleaning, sweeping and flushing was $2,658, or $0.0086 per square yard, and for gas, oil, grease and equipment repairs, the cost was $642, or $0.0024 per square yard, making a total for cleaning and maintenance of $3,300, or $0.011 per square yard. The 1928 costs were $3,500, and 1930 costs will be about the same as for 1929.

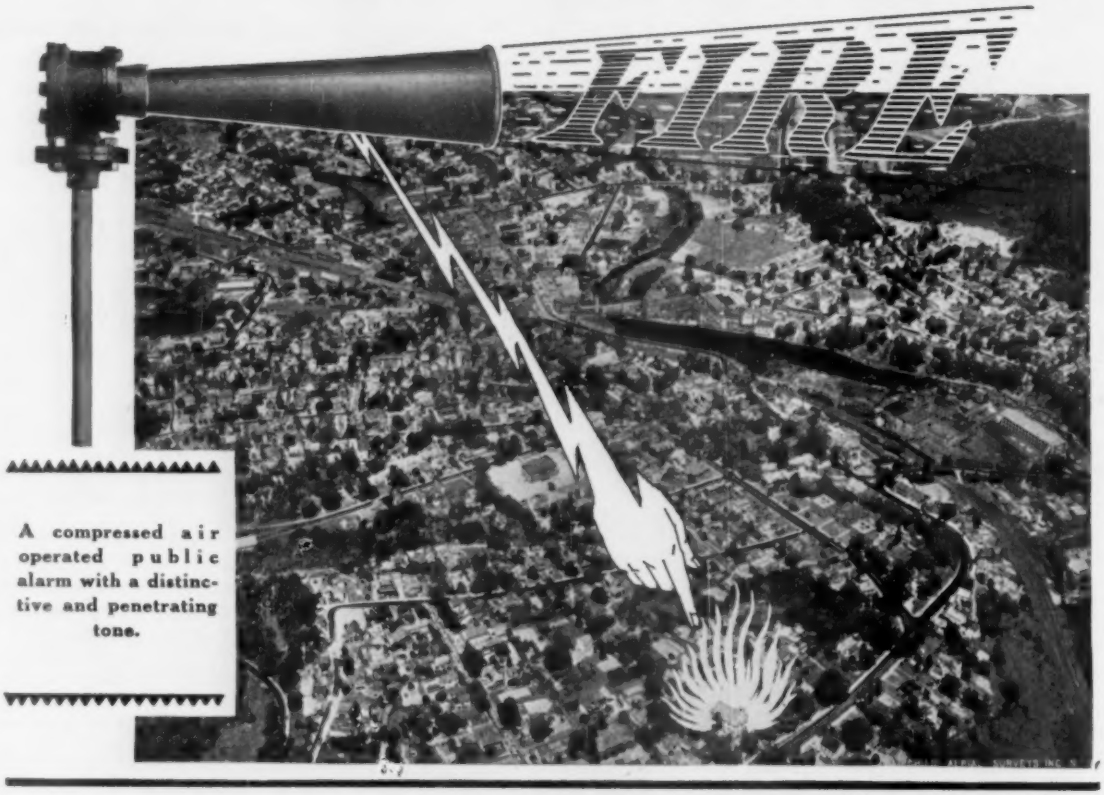
E. J. AUSTIN,
City Engineer.

New Bedford, Mass.

NEW BEDFORD, 56 miles south of Boston at the mouth of the Acushnet River on an arm of Buzzards Bay, has a population of 112,000 and an area of 84,138,606 square yards of streets to be cleaned. An average of 20 men are employed for this work, using one Austin and two Elgin motor pick-up sweepers, one power flusher, three Ford trucks, three double teams and six to twelve can carriers and equipment for hand cleaning. The annual expenditure for 1928 was $62,763; for 1929, $65,067; and estimated for 1930, $65,000.

W. P. HAMMERSLEY,
Superintendent of Streets.

THE DIAPHONE



A compressed air operated public alarm with a distinctive and penetrating tone.

When you have tried all other public alarm devices and find your need for a penetrating public alarm with a distinctive tone, unfilled, it is time that you installed a *Diaphone*.

The *Diaphone* is the old standby in public alarms. For years it has protected small municipalities throughout the country. It protected the U. S. Army Cantonments during the war and it can still be found protecting U. S. Government property. The *Diaphone* also has a fine service record in an entirely different field, one where the life and property hazard is equally as great as in the fire protection field—the lighthouse service. Along the coasts of this country, on the banks of the St. Lawrence River and on the shores of the Great Lakes, the *Diaphone* as a foghorn, has for years warned ships off the rocks. It was selected by two Governments for this important service because of its penetrating tone and reliability of operation.

The *Diaphone* has a tone that cries "Fire." It cannot be confused with whistles and other noises of the modern community. It will satisfactorily sound a code signal from a standard street fire alarm box. Furthermore, a storage reservoir with a capacity of 100 blasts is provided so that an alarm may be sounded on the *Diaphone* even though the electric current be shut off for a period of 24 hours.

Before you install a public alarm investigate the *Diaphone*.

Will operate from

Standard Street Fire Alarm Box

A Bulletin describing the Diaphone more completely will be sent upon request.

The Gamewell Company

Newton, Mass.

"A Box A Block"

Can be operated from

Peerless P. N. I. Transmitter located at fire station or phone exchange

TRAFFIC—FIRE—SAFETY ITEMS

Of Interest to DEPARTMENTS OF PUBLIC SAFETY

New Publications of National Conference on Street and Highway Safety

DURING July three new pamphlets were issued for free distribution by the National Conference on Street and Highway Safety (1615 H St., N. W., Washington, D. C.) These are "Ways and Means to Traffic Safety," summarizing the proceedings and recommendations of the Conference held in Washington in May, 1930; the final revision of the Model Municipal Traffic Ordinance; and Act IV of the Uniform Vehicle Code. The changes in Acts I, II, and III were not extensive enough to make it necessary to reprint the Acts, but mimeographed copies are available of these changes, together with copies of the Acts as printed in advance of the May Conference.

No definite action has yet been reported from Washington on the resolution adopted at the May meeting and published in full in "Ways and Means to Traffic Safety," in which Secretary of Commerce Lamont was requested to appoint a committee to consider ways and means of establishing a national foundation to conduct comprehensive studies on various problems of congestion affecting public safety, the stability of property values, and the orderly development of urban communities.

How Many Die from Fire Annually?

FOR years we have been appalled at the staggering economic waste involved in our fire losses. Data concerning property losses have been tabulated each year with increasing care, so that we may know that the figures now given are reasonably accurate. Our great lack has been figures on injuries and loss of life. Through the efforts of the Fire Casualty Statistics Committee of the National Fire Waste Council we can now get some glimpse of the appalling human cost.

The Committee finds that the toll of deaths in the winter months is more than twice as heavy as in the spring and early summer. This difference it attributes to heating, with such attendant practices as the use of kerosene to help start the fire. One-fourth of all fire deaths occur in burning structures. Another fourth involve flammable liquids. It finds also that more than a quarter of those who perish in fires are little children under ten years of age.

The Committee studies were confined to fifteen states, and no guess is ventured as to the number of persons injured or burned to death in fires each year. It would seem, however, that this total is not less than 17,000, with almost three times that number seriously injured. The figure is of particular interest because it is almost three times as large as that given annually by the Department of Commerce. That Department lists 6,323 deaths from burns in 1928. The Committee of the Fire Waste Council, examining newspaper reports and checking with fire marshals, discovered 6,200 fire deaths in fifteen states in six months.

Fire Prevention Week—October 5 to 11, 1930

THE National Fire Protection Association, with headquarters in Boston, is, as usual, preparing special campaign literature for Fire Prevention Week, which will be held this year from October 5 to 11. The Committee on Fire Prevention and Clean-up Campaign directs attention to the necessity of making early plans where it is desired to place Fire Prevention Week messages on printed matter, such as periodicals, letterheads, bill forms, etc. Another committee of the Association, that on Visual Education, plans to issue a pamphlet and illustrations on fire prevention window displays, state fair exhibits and like material.

The Cigarette and Public Safety

THE cigarette doubtless has its place, but it is not always kept in it. Recent government tests showed that all cigarettes will burn to a complete ash and that they will take as much as thirty minutes to burn out. We have no desire to see prohibition extended to cigarettes, but we do think they should be "stamped out." The habit of smoking in bed is another that we should try to discourage. Smoking at the wheel of a car is frequently a menace. The driver is now and then distracted when he is lighting up. His vision may be blurred by smoke. In an emergency, he has one more thing to think about. Particular effort should be directed to women drivers who smoke. In a moment of stress, her sense of order prevents her dropping her cigarette on the floor of the car. She dislikes to press it out on the wheel where it will leave a scar. And she simply will not pinch it out between her fingers. When a policeman sees a woman lighting up, he might do well to smile and shake his fingers in a gentle admonition.

Fire Prevention Movies for Vocational School

A NOVEL safety and fire prevention course of study is being arranged by the Milwaukee Vocational School. Motion pictures are being taken of fire apparatus, receiving and sending alarms, and the firemen's drill school.

Chief Peter Steinkellner has agreed to notify the school of second-alarm fires, so that pictures can be taken of the firemen in action. Request was made for permission to ride on the fire-trucks to get pictures of following apparatus, but this was refused.

When completed, the pictures will be combined into a film for use in the school in teaching its pupils safety and fire prevention.

Conflagrations and Shingle Roofs

THE old-fashioned general conflagration is, happily, a disappearing phenomenon. Cities no longer live in dread of its peril. Perhaps we are a bit too confident in this feeling of security. The tragic experience of Nashua, N. H., this May, should remind us that for many cities the danger is not past. A tiny fire in a wooden bridge started it all. There had been several weeks of drought. The wind was high. The burning brands blew from the bridge to adjacent shingle roofs. From these the fire spread through the town, up one street after another, until a substantial portion of the manufacturing and residential section of the town had been destroyed. Fifteen hundred people were driven from their homes. Many of them are still out of work because the factories which employed them are in ruins. The total property loss is estimated at $3,000,000, only half of which was covered by insurance.

The public authorities have responded with an ordinance requiring fire-resistive roofs on all new buildings. There are many cities that might profit by this example—before they have a conflagration.

Passing on the Right

A GOOD point is made by a letter about arrests of motorists who pass cars on the right-hand side, says the *San Francisco Chronicle*. This is prohibited by the state law and for very obvious reasons of safety. Yet, as is pointed out, the fact that a motorist is able to violate this law is clear proof that the vehicle he passes is hogging the middle of the road; otherwise there would be no room to pass on the right-hand side, and the overtaking driver would not be forced into this violation as an alternative to poking along behind a middle-of-the-roader.

Safety requires strict enforcement of the rules for passing. But for every motorist brought into court for this offense, the traffic officer should produce the motorist who promoted the offense by violating another state law, that which requires giving way to an overtaking vehicle. If drivers are properly disciplined for failure to keep to the right of the road, there will be no need to prosecute right-hand passers. There will be no chance for them to do it.

We'll Make This Traffic STOP TEST in YOUR Town -- NO OBLIGATION

Standard Traffic Signs are used throughout the United States, in Canada and Hawaii. Here are a few of the 1600 municipalities which have solved traffic problems with them:

Birmingham, Ala.
Flagstaff, Ariz.
Fort Smith, Ark.
South Bend, Ind.
Monterey, Calif.
Richmond, Calif.
Staunton, Va.
Crisfield, Md.
Jacksonville, Fla.
Miami, Fla.
Lewiston, Idaho
Chicago, Ill.
Terre Haute, Ind.
Des Moines, Ia.
Kansas City, Kans.
Emporia, Kans.
Wichita, Kans.
Lexington, Ky.
New Orleans, La.
North Adams, Mass.
Kalamazoo, Mich.
Grand Rapids, Minn.
Yazoo City, Miss.

and 1600 Other Towns

◆ ◆ ◆

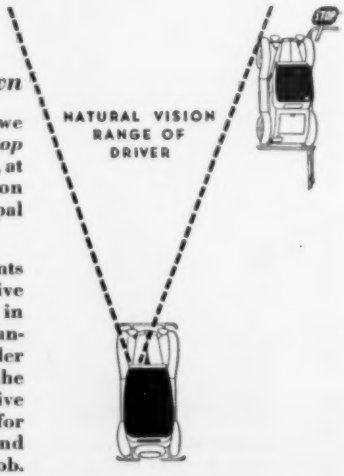
There's a Surestop Sign for every traffic purpose:

Under rigid, carefully checked tests the Sure-Stop Rubber Traffic Marker proved to be

90% to 95% Effective

Under the same tests at the same identical traffic intersection, the ordinary curb type of stop sign proved to be only

25% to 45% Effective



A Test In Your Town

With our own test crew, we will conduct a *Traffic Stop test* in your city or town, at no expense or obligation at all to your municipal government.

Your traffic division wants to have the most effective system of traffic control in effect. Here is an opportunity to see for yourself under actual tests which is the best. Write today and give us a convenient date for this test in your town and our man will be on the job.

Standard SURE STOP Rubber Markers

Sure-Stop Rubber Markers are always in direct vision of the driver. Dust, wind, rain, sleet or snow cannot harm them. Can be installed in asphalt, brick, dirt, gravel, concrete or any kind of road or street. Flexible, always upright, always on duty.

This System of Traffic Control was invented, patented and the first installation was made less than three years ago. Today it is being used in more than 1600 cities and towns in the United States and Canada. This rapid growth is due to the unfailing effectiveness of the system and the long-wearing and economically installed markers themselves.

SEND FOR BOOKLET. Tells all about the Sure-Stop System of Traffic Control and its many uses. Ask for this booklet when you send us the date to make the "Stop Test" in your town.

THE STANDARD SYSTEM OF TRAFFIC CONTROL

THE STANDARD TRAFFIC MARKER COMPANY

1711 EAST SECOND ST. WICHITA, KANSAS

1230 St. Clair, Cleveland, O. 225 Eleventh St., San Francisco, Calif.

JOE W. FISHER
Fire Chief, Dubuque, Iowa
(Appointed 1921)

F. E. FITZGERALD
Fire Chief, Childress, Texas
(Appointed 1925)

T. P. COE
Fire Chief, Tallahassee, Fla.
(Appointed 1912)

GEO. E. W. BRITT
Police Chief, Augusta, Ga.
(Appointed 1927)

C. W. CORLESS
Fire Chief, La Grange, Ga.
(Appointed 1918)

WHO'S WHO IN PUBLIC SAFETY

The 32nd of a Series of Portraits of Fire and Police Chiefs Which Has Appeared Monthly Since January, 1928

L. R. WESTON
Police Chief, Coral Gables, Fla.
(Appointed 1929)

RAY H. CLEAVELAND
Fire Chief, Shenandoah, Iowa
(Appointed 1916)

LUCIAN CRAIG
Police Chief, Fort Lauderdale, Fla.
(Appointed 1929)

JOHN H. HAYES
Fire Chief, Bristol, Conn.
(Appointed 1918)

L. R. MORRIS
Fire Chief, Ames, Iowa
Appointed 1910)

HERMAN J. ARNISH
Fire Chief, Iowa City, Iowa
(Appointed 1929)

BENJ. T. WATKINS
Police Chief, Macon, Ga.
(Appointed 1925)

F. L. HADDON
Fire Chief, Live Oak, Fla.
(Appointed 1917)

L. G. POPE
Police Chief, Orlando, Fla.
(Appointed 1929)

Protect THE HIGHWAYS AND BYWAYS *with Eagle Signs*

Reduce Accidents, Save Lives and Property with these New Signs made by an Organization of Long Experience in Traffic Signaling Equipment.

A Sign must be attractive and durable, of course, but primarily it must serve to WARN—This the new EAGLELUME (self-illuminated sign) does better than any other type. Its brilliant warning flash cannot escape attention.

In addition to EAGLELUME, these signs are also available in the EAGLERAY (headlight illuminated type) and the unilluminated STANDARD design.

Eagle Signs conform to the regulations of the American Engineering Council and the National Conference on Street and Highway Safety.

Write for your copy
of SIGNAL SIGN REFERENCE BOOKLET

EAGLE SIGNAL SALES CORPORATION

MOLINE, ILLINOIS *A Subsidiary of The Gamewell Company*

AUGUST, 1930

Vol. XLIII, No. 2

The American City

443 Fourth Avenue
New York

50 Cents, $4 a Year

Why Hudson, Mass., Approves Diesels

By LELAND D. WOOD

MANAGER, LIGHT AND POWER DEPARTMENT, HUDSON, MASS.

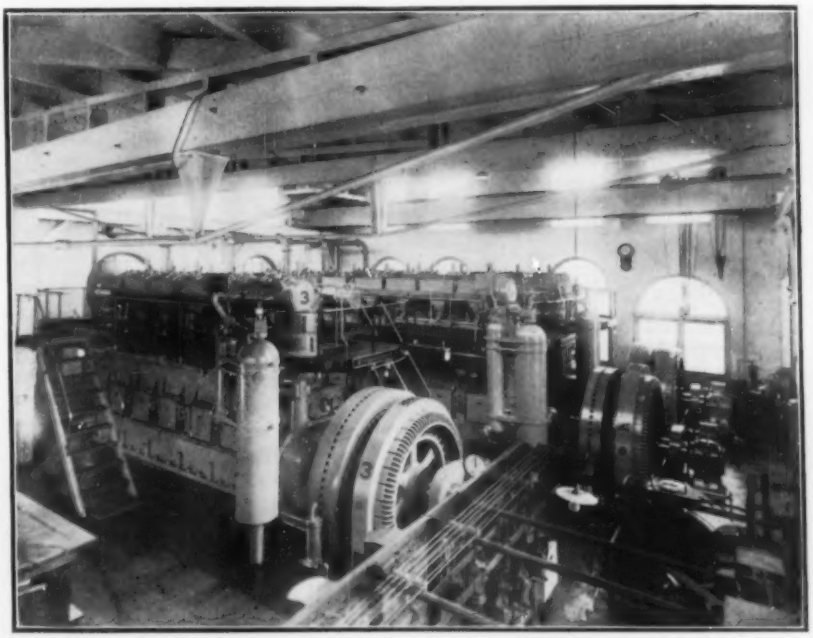
THE great majority of municipal lighting plants, especially in the East, started operations as small, isolated, generating plants. Being situated in small communities, they had only limited opportunity for growth, although practically all seemed to have developed their local fields as much as the average privately owned plant has done in communities of similar size. As the larger private companies developed the system of large central generating stations which supplied towns and cities surrounding them by long-distance transmission lines, many of the smaller municipal lighting plants abandoned their generating stations and purchased power from these large transmission companies upon finding that, because of having obsolete and inadequate steam plants, their generating costs were larger than the cost of purchased power. Some of the larger municipal plants still retain their generating stations but are connected with the transmission companies, these connections being of large size as compared with their generating capacities, especially if favorable contracts and good service are available.

In Massachusetts, out of 45 municipal lighting plants all but eleven have abandoned their generating stations: two, North Attleboro and Reading, keep their stations only for standby, the latter thus reducing the demand charge from the transmission company; seven, Braintree, Holyoke, Ipswich, Marblehead, Middleboro, Peabody and Taunton, have substantial auxiliary connections, and two, Concord and Hudson, are isolated central stations, although Concord has recently arranged with a transmission company for a large block of power.

Old Plant Badly Deteriorated

In 1920, owing to rapid post-war growth, Hudson signed a contract with a neighboring transmission company for additional electrical supply beyond its generating capacity at that time. By 1928, Hudson's steam plant, which consisted of about 700 hp. in horizontal return tubular boilers operating at 125 pounds pressure, supplying a 600-kw. and a 200-kw. turbine, had deteriorated so far that it seemed wise to make an entire change in its source of electrical supply. The generating costs were lowest in 1926 when the cost per kwh. generated was 1.79 cents at the switchboard. This rate seemed too high. A study was made over the next two years to ascertain what source of supply would best fit Hudson's needs. Four plans were considered:

1. A modern isolated, coal-burning steam station
2. A modern steam station plus purchased power from the transmission company
3. All purchased power from the transmission company
4. A modern isolated diesel generating station



ENGINE ROOM IN HUDSON MUNICIPAL GENERATING PLANT

In the foreground is the 6-cylinder engine and in the background the two 8-cylinder engines

We found that, while diesel plants were common and successful through the South and West and in marine work, they were comparatively unknown in New England and in bad repute because of unfortunate experiences with them when they were first developed, as many of the early diesels were built and operated in New England.

Yet in carefully studying the four methods above, it was found that, taking into consideration operating cost, maintenance, continuity and excellence of service, a diesel generating station would best serve Hudson, and the Commissioners of Public Works of Hudson courageously decided to adopt this source of supply.

Installation of New Equipment

Work was commenced in May, 1928, revamping the old steam station by removing all steam-generating equipment—operating on purchased power meanwhile, raising the roof to provide adequate height for engines and crane, and installing the following equipment:

EXTERIOR OF MUNICIPAL ELECTRIC GENERATING PLANT AT HUDSON, MASS.

Two 900-b.hp., 8-cylinder, 4-cycle, air injection McIntosh & Seymour engines with 615-kw. General Electric Co. generators direct connected

One 675-b.hp., 6-cylinder, similar engine direct-connected to a 460-kw. generator

All engines have 17 x 24-inch cylinders, operate at 225 r.p.m., and electricity is generated at 2,300 volts, 60-cycle, 3-phase.

Fuel oil is received in tank cars on a side track adjacent to the station and stored in two 20,000-gallon horizontal above-ground tanks. Town water in a closed system is used for cooling the cylinders, this water being cooled in turn by passing it through a heat exchanger cooled by rather dirty water from the Assabet River, beside which the station is located. The bearing oil in the engines is used over and over, being clarified by a DeLaval separator. The station is served by a 10-ton hand-operated traveling crane, much too large for routine repairs but of great use in the installation of these engines and any future engines. Electricity is controlled by a 15-panel switchboard installed in 1920, which required only minor changes in the generator and exciter panels to serve the diesel plant.

The cost of the change-over from steam to diesel was as follows:

Building changes, fuel oil tanks, crane and craneway	$12,800
Pumps, piping and auxiliary equipment	4,300
Electrical work	4,700
Diesel engines, generators, exciters and foundations complete	145,200
	$167,000

Of this amount, $160,000 represents plant investment and $7,000 represents alterations in the existing plant. The change-over was financed by taking $127,000 from the Construction Fund, made up from the surplus earnings of the previous six years, and the balance from a bond issue of $40,000 bearing interest at 4¼ per cent and repaid in ten annual payments of $4,000 each.

Comparative Steam and Diesel Operating Costs

A comparative table is presented showing the costs in the year 1926 and for the year July 1, 1929, to July 1, 1930, the first twelve months of operation as an isolated diesel generating station, as the transmission company contract did not expire until July 1, 1929.

This table shows quite conclusively the gain in efficiency and economy of a typical diesel plant over an ordinary steam plant. We are saving close to $30,000 a year by the installation of the diesel plant, enough to pay for the installation cost in five years. In passing, it might be noted that the recorded peak of 1,400 kw. last winter was not a representative one, as a breakdown customer came on during the Christmas load, adding 200 kw. to the peak. On the basis of a 1,200-kw. peak the yearly load factor would be 37.7 per cent, which is a more correct load factor.

COMPARISON OF OPERATING COSTS: STEAM 1926; DIESELS, JULY 1, 1929-JULY 1, 1930

Items	1926	1929-30
Kwh. purchased	704,800	0
Kwh. generated	2,112,646	3,962,900
Kwh. used in station	275,904	220,900
Kwh. distributed	2,541,512	3,742,000
Pounds of coal used	6,762,000	
Pounds of coal per kwh. generated	3.2	
Gallons of fuel oil used		357,678
Gallons of kerosene used		1,773
Gallons of lubricating oil used		2,426
Kwh. per gallon of fuel oil		11.10
Kwh. per gallon of lubricating oil		1,635
Brake h.p. of engines run		9,973,363
Brake h. p. per gallon of lub. oil		4,100
Expenses		
Labor	$14,039.37	$15,454.80
Fuel oil or coal	21,782.14	14,917.93
Lubricating oil	58.10	1,235.16
Supplies and expenses	2,271.32	741.45
Purchased power	12,262.79	0.00
	$50,413.72	$32,349.34
Overhead		
Depreciation	$3,730.00	$4,800.00
Bond repayments	6,500.00	4,000.00
Interest on bonds	2,333.71	1,614.98
	$12,563.71	$10,414.98
Total operating and overhead costs	$62,977.43	$42,764.32
Yearly load factor	37.4%	32.3%
Running load factor	.....	58.6%
B. t. u. per kilowatt-hour	47,360	13,175
Thermal efficiency	7.2%	26.0%
Peak load	860	1,400
Maximum daily output	11,000	18,400
Increase in output		40.7%
Costs per kwh.	1926	1929-30
Expenses		
Labor	$.00498	$.00390
Fuel oil or coal	.00776[1]	.00376
Lubricating oil	.....	.00031
Supplies and expenses	.00081	.00019
Purchased power	.00436[2]	.....
	$.01791	$.00816
Overhead	.00446	.00263
Total operating and overhead		
Per kwh. generated	.02237	.01079
Per kwh. distributed	.02475	.01142

[1] .0103 per kwh. generated.
[2] .0174 per kwh. purchased.

Low Rates

This system of generation has enabled us to promulgate practically the lowest average rates in Massachusetts, either in a municipal or a privately owned plant, with an excellent prospect of another reduction in the near future.

In 1926 our rates were:

For Domestic Lighting and Commercial Lighting:

First 100 kwh. per month	9c	per kwh. net
Next 300 kwh. per month	8.1c	per kwh. net
Next 400 kwh. per month	7.2c	per kwh. net
Next 700 kwh. per month	6.3c	per kwh. net
All over 1,500 kwh. per month	5.85c	per kwh. net

For Domestic Power:

3c. per kwh.

For Commercial Power:

First 500 kwh. per month	4.05c	per kwh. net
Next 1,000 kwh. per month	3.6c	per kwh. net
Next 1,500 kwh. per month	3.15c	per kwh. net
Next 2,000 kwh. per month	2.925c	per kwh. net
Next 2,500 kwh. per month	2.7c	per kwh. net
All over 7,500 kwh. per month	2.475c	per kwh. net

In October, 1929, our present rates were instituted:

For Domestic Light and Power:

First 20 kwh. per month	7c per kwh. net
Next 180 kwh. per month	3c per kwh. net
All over 200 kwh. per month	2c per kwh. net

For Commercial Lighting:

First	30 kwh. per month	7c per kwh. net
Next	80 kwh. per month	6c per kwh. net
Next	700 kwh. per month	5c per kwh. net
Next	1,200 kwh. per month	4c per kwh. net
All over	2,000 kwh. per month	3c per kwh. net

For Commercial Power:

First	300 kwh. per month	4c per kwh. net
Next	1,700 kwh. per month	3c per kwh. net
Next	2,500 kwh. per month	2.7c per kwh. net
Next	3,500 kwh. per month	2.4c per kwh. net
All over	8,000 kwh. per month	2.2c per kwh. net

Cooperative Wholesale Rate Demand Charge:

First 100 kw. of 30-minute demand, $2 per month
Over 100 kw. of 30-minute demand, $1 per month

Energy Charge:

First	2 hours use of demand	2.5c per kwh.
Next	3 hours use of demand	2.0c per kwh.
Next	3 hours use of demand	1.75c per kwh.
Next	3 hours use of demand	1.5c per kwh.
Next	3 hours use of demand	1.0c per kwh.
Over	14 hours use of demand	.8c per kwh.

These represent reductions of about 30 per cent to 50 per cent for domestic use, 30 per cent to 40 per cent for commercial lighting, and 5 per cent to 12 per cent for commercial power.

With regard to the suitability of using diesel engines as a source of power for electric generating plants, our experience is that there are many reasons why they can be successfully and economically used.

Fuel Economy

In the first place, because of the fact that all of the power generation is performed within the cylinder, the size of the cylinder, and thus the size of the engine, have no bearing on its efficiency, within certain limits. Diesel engines are commercially available today in sizes from 50 b.hp. to 15,000 b.hp., and the difference in economy between these two sizes is surprisingly small. In the range in size commonly used today, from 300 b.hp. to 4,000 b.hp., there is substantially no difference in the economy at the same percentage of rated load. This means that electric generating stations having a reasonable factor of reserve capacity can be built with installed capacity ranging from 600 b.hp. up to 32,000 b.hp., or from about 400 kw. up to 21,000 kw., and obtain substantially the same operating efficiency, that is, 10 to 12 kwh. per gallon of fuel oil. The whole secret is in accurately picking engine sizes, so that the engines will never be less than one-half loaded and will be usually about four-fifths loaded or better. The economy curve from one-half load to full load is quite flat, a typical rating in a medium-size engine being 0.47 lbs. of fuel oil per kwh. at one-half load, and 0.41 lbs. of fuel oil per kwh. at full load. The thermal efficiency of a plant generating 11 kwh. per gallon of fuel oil is about 26 per cent. None but the super-power, high-pressure steam stations even approach this economy. It is reputed that the new German liners *Bremen* and *Europa*, burning fuel oil under their boilers, cannot do better than 9 to 10 kwh. per gallon of fuel oil.

Savings in Labor, Buildings and Cooling Water

Diesel engines today are simply designed and ruggedly built. An operating crew of average intelligence under an intelligent chief engineer can successfully and economically operate and maintain the engines. In many small installations throughout the country the engines are wholly cared for by men trained locally and with little mechanical experience, and yet the plants operate successfully and give good service year after year.

The size of building needed to house a diesel-engine installation can be much less than that needed for an equivalent steam plant, and the construction of the building is more simple and therefore less expensive, because the station comprises but one large operating room with only the smaller spaces partitioned off for stock, office and employees' rooms, in place of the rather complicated construction of a modern steam station.

The fact that much less water is required for cooling—and this may be used over and over again—than for generating an equivalent amount of electricity by steam, means that these stations can use town water for cooling and can be located in the center of their load. An adjacent side track is handy, but otherwise the fuel oil can be pumped economically many hundred feet.

The old bugbear against operating diesels in a first-class neighborhood has been entirely removed. The exhaust can be so silenced that it is inaudible over 50 feet from the station, and cork mats under the foundations do away entirely with vibration. Because of the absence of coal-dust, ashes and smoke, the stations can be and frequently are made very handsome architecturally and set amidst beautiful surroundings, the buildings often resembling banking institutions or high-class administration buildings, a credit to their surroundings.

The price of fuel oil is not likely to increase over 30 to 40 per cent during the next ten years, and in all probability the present spread in price between coal and fuel oil in any community is not likely to change. Should fuel oil prices advance too much or oil become scarce, it will be possible to use powdered coal in place of fuel oil in the engine. Already an experimental engine using powdered coal has been operating for five years and a commercial design is practically available. The only changes needed in present engines, particularly 4-cycle air-injection engines, to convert them to powdered-coal operation is the substitution of new cylinder heads, valve riggings and fuel-supply mechanism. When these changes are made, the fuel costs will be reduced nearly a third; that is, in Hudson the best grade of New River coal costs $6.87 per gross ton delivered, and Navy "A" fuel oil costs 4.23 cents per gallon delivered. Reducing these figures, coal costs .0000207 cents per B.t.u and oil costs .0000283 cents per B.t.u.

Large Stations Possible

Should there be a demand, it would be quite easy to build diesels capable of operating 10,000-kw. generators each, and ten such engines or more could be easily handled in one station. Thus it would be quite possible to construct a 100,000-kw. diesel generating station or larger. This could readily serve a large city and its surrounding territory.

For isolated stations or where good service and attractive rates cannot be obtained from transmission companies, or where the circumstances seem to make it wise to preserve independence from transmission companies, a diesel plant is by far the most economical and comfortable plant to install, operate and maintain.

A Planning Department for New York

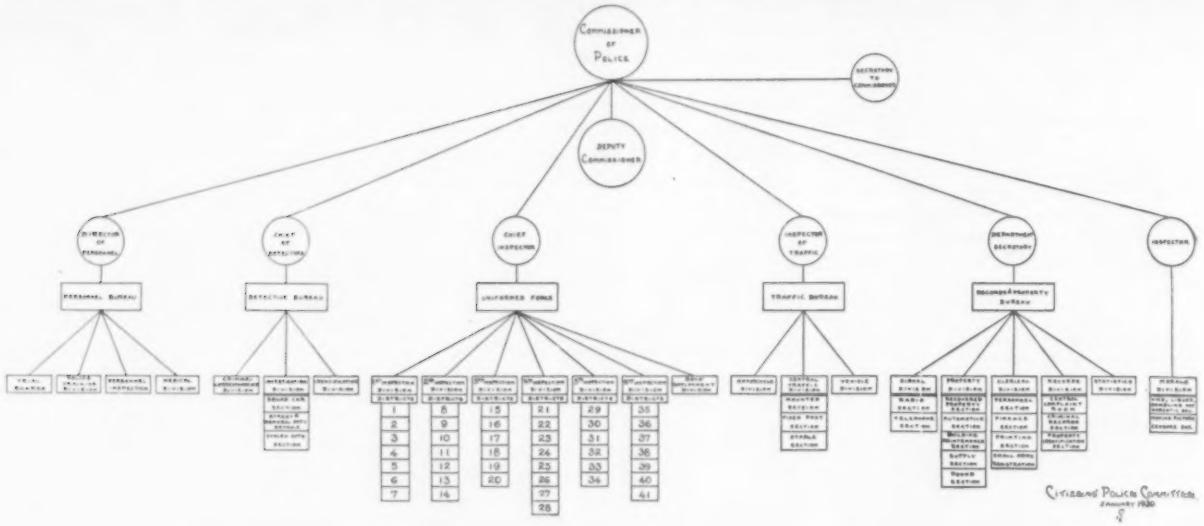
IN the city of New York city planning has at last been given official status. On July 8 an ordinance was adopted, creating a City Planning Department, headed by one official to be called the Commissioner of City Planning.

In the hearings on the bill, differences of opinion were evident among the civic organizations of the city as to the wisdom of the measure. This was due, not to any lack of appreciation of the importance of a planning commission or department for New York, but rather to a feeling on the part of some of the organizations that a commission of three or more with broad powers would be preferable to a one-man department with very limited powers.

To the new post, Major Walker has appointed Major John F. Sullivan, an engineer who, in recent years, has served the city in a consulting capacity and the Mayor as engineering advisor. The work of the City Planning Department has been split into subdivisions of administration, thoroughfares, zoning, utilities, port facilities, education and recreation, and public buildings and improvements.

Mayor Walker also has announced the formation of an advisory committee to assist Major Sullivan. Its members are: Morgan J. O'Brien, Chairman; George McAneny, President of the Regional Plan Association; Thomas Adams, former Director of the Regional Plan of New York and Its Environs; Arthur S. Somers, of the Board of Education and President of the Long Island Chamber of Commerce; Ralph Jonas, Brooklyn banker and philanthropist; Frederick Lemmerman, President of the Queensboro Chamber of Commerce; Park A. Rowley, Queens banker; Leo J. Ehrhart, Bronx engineer; Horace Flannigan, Bronx merchant; and George Bridgeman, Staten Island banker.

PROPOSED ORGANIZATION OF THE CHICAGO POLICE DEPARTMENT



Citizens' Police Committee Would Reorganize Chicago Force

THE Chicago police force, as the Citizen's Police Committee found it, consisted of no less than twenty separate and distinct offices, bureaus, divisions, or sections owing direct, administrative responsibility to the police commissioner. The highest police authority was therefore burdened with a task of detailed supervision greater than that of any of his subordinates and far exceeding the capacity of any one man. It is practically impossible for the police commissioner to make daily or intimate contact with the heads of the twenty separate units directly responsible to him. The situation was further aggravated by the location of the police commissioner's office in the City Hall, more than a mile distant from police headquarters, where most of his immediate subordinates are located.

The structural arrangement of any administrative body is often a matter of serious moment. When the body in question is the police force of a great city, and comprises in excess of 6,000 men who are distributed over an area of 200 square miles, the question of organization assumes major importance. Efficient conduct of police operations clearly requires that the basic principles of organization be observed both in theory and in practice. These basic principles are three in number.

The first is concerned with administrative leadership, which implies a unified command, exercised directly and continuously upon the several functions or services.

The second involves limitation in the number of major units so as to permit general supervision by the leader. While the number of such major units must depend, in some degree, upon the purpose and character of the organization, such units cannot be too numerous, or the leader will become entirely engrossed in detail.

The third principle of organization is a natural consequence of the second, and involves the grouping of related activities in such manner that a small number of bureau chiefs may exercise daily supervision under the general control of the administrative head.

The accompanying organization chart also shows that intimately related functions and activities are parceled out to a number of independent bureaus, divisions, and sections. For example, responsibility for traffic regulation is divided between the traffic division, the motorcycle section, the vehicle section, and the 41 district commanders. The largest traffic problem of the city, represented by the central traffic zone, is handled as a mere adjunct to the work of the first division. Likewise, personnel matters are distributed among the drillmaster, chief surgeon, and first deputy commissioner. Property management and control are vested in the property section, lost and stolen property section, first deputy commissioner, and department secretary. Similar conditions exist with respect to criminal records and criminal investigations.

This scattering of responsibility for related activities has two immediate results. It prevents systematic planning and the economical use of man-power. The only possible coordinating influence is the police commissioner, already overburdened with detail and too far removed from the scene of daily adminis-

A Valuable Series of Reports

After an extensive survey of the Chicago Police Department, the Citizens' Police Committee, headed by Professor Leonard D. White, and with Bruce Smith as Staff Director, has offered some very timely and practical suggestions for the improvement of the police structure of that city. This reorganization plan, though it deals with one of the largest police systems in America, is based on principles which have application to much smaller police departments.

The accompanying article follows very closely, in somewhat abridged form, a portion of Report No. 4 of the series which the Citizens' Police Committee has been submitting in recent weeks to the Police Commissioner of Chicago. The reorganization plan is now before the Public Safety Committee of the City Council of Chicago, and early favorable action on its recommendations is expected.

The work of the Citizens' Police Committee has now been going on for twelve months. It has covered every feature of the administration of the Chicago Police Department. The survey proper has been completed, but will not be published until the work of installing the recommendations has been brought to a close.

Copies of the series of pamphlet reports are obtainable from the Municipal Reference Library, 1005 City Hall, Chicago, at 3 cents each, to cover cost of mailing.

trative action to exercise a decisive influence over more than a part of the administrative organism.

The manner in which the Committee would meet these problems is indicated in the accompanying chart of the proposed organization. Its three outstanding features may be contrasted with the organization as it now exists.

First, the number of units and individuals directly responsible to the police commissioner is reduced from twenty to eight.

Second, the deputy commissioner is relieved of the minor and unrelated duties and constituted as a deputy in fact as well as in name.

Third, related activities are grouped under definite supervision. The five major functions of the department are each allocated to a distinct unit, commanded by an officer directly responsible to the commissioner. Four bureaus are set up, which deal respectively with personnel, crime detention, traffic, and records and property. To these are added the fifth and largest of the major functions, namely, crime repression and prevention as represented by the uniformed force. Taken together, they embrace the entire rank of administration in any police force, whatever its numbers, constitution, or character. In the present instance, however, practical considerations require that the vice, gambling and liquor sections, together with the narcotic squad and moving picture censors, continue to operate as separate and distinct agencies.

Finding and Meeting a City's Most Urgent Needs

How a Citizens' Committee Can Aid in Carrying Out, Over a Period of Years, a Well-prepared City Plan

QUOTING the estimate of Dr. Louis J. Dublin that by about 1970 the birth-rate and death-rate in the United States will be balanced at 15.5, and that we shall have at that time an approximately stationary population of about 150,000,000, Gardner S. Rogers, Assistant Manager of the Civic Development Department of the Chamber of Commerce of the United States, points out that the city which would grow in the future must secure its population largely from other cities. "This is a staggering thought," says Mr. Rogers, in a paper presented at the National Conference on City Planning, in Denver last month; "it means that in the future every city will increasingly become the competitor of other cities and that those which cannot or will not provide for the well-being of their citizens are likely to have fewer and fewer citizens to provide for."

In addition to citing several examples of foolish planning and shortsighted municipal action, such as he outlined in his article in THE AMERICAN CITY for September, 1929 (page 112), Mr. Rogers offers several constructive suggestions for efficiency in municipal development. To quote in part:

"The primary requisites of a municipality are well known. They are the systems of transportation and communication; the use to which property is put—residence, business and industry; educational facilities; protection of persons and property, and recreation.

"Considering these problems from the broad aspect of municipal well-being rather than from the preliminary phase of planning, it would appear that answers are needed in each city to two questions: (1) What projects must a city develop during the next few years to provide reasonably for the well-being of its present and anticipated citizens, and in what order must these projects be carried out? (2) After a project has been decided upon, how may it be most efficiently developed?

"It might appear that the average municipal administration with the help of interested citizens would be able to determine with little or no investigation what projects are needed and when. In fact, it is primarily because this belief does prevail in 99 per cent of our cities that local taxes are as high as they are. It is a simple fact of experience that cities do not know the relative value of the projects under consideration. . . . Therefore, it would appear that a program based upon factual data and developed according to priority of need is the first step.

"The second step noted above is efficiency of development. Efficient development used in this sense is not intended to mean such common practices as the letting of contracts to the lowest responsible bidder nor proper supervision of public works. The phrase as used means the development of a project in accordance with the service it is expected to render.

Political Expediency Is Not an Efficient Planner

"Efficiency in municipal development cannot be expected when the various projects proposed are based upon political expediency or the selfish desires of an interested group of citizens. The problems are not only of themselves far too complicated, but are so interwoven with all phases of municipal life as to make any unscientific procedure hazardous to the well-being of a community. Adequate plans for development should be made by those best qualified in the respective fields, and these plans should be turned over to a coordinating committee working in cooperation with the citizens and the city administration for the welfare of the community as a whole.

"The creation of a city planning commission, the selection of a city planner, and the preparation and more or less general approval of the plan are the easiest part of the work. The real problem begins when a city tries to interpret the plan and put it into effect. The reason for this is that generally the plan is rather technical in many of its details and when transferred to a lay planning commission to carry out, becomes a job for which they often are not equipped.

"The average planning commission is qualified to advocate the widening of a street or the purchase of a playground, and in fact is an excellent promotional agency for all phases of city planning. It can also go farther and approve subdivisions from the standpoint of whether or not they tie in satisfactorily with the master plan which it has before it. It also is qualified to make certain recommendations regarding changes in zoning ordinances. To this extent many planing commissions are doing very excellent work. However, the city plan may state that a street should be widened to 100 feet and make no recommendation as to the width of the pavement. It is not a particularly difficult problem to determine the proper width of a pavement when all the facts are known, but many planning commissions do not know what facts should be obtained, or, if they do know, do not have the facilities for gathering the data. Problems of this kind are not always well handled.

"The widening process itself often becomes a technical and difficult problem. For example, the planner recommends that Avenue 'A' be immediately widened. The question arises as to how this should be accomplished. Are sufficient moneys available out of taxation? Probably not. Is it desirable to issue bonds to pay for the improvement and has the community sufficient bonding limit to permit of this issue? The consultant, having been employed to prepare only a city plan, may have considered the widening of Avenue 'A' only from the standpoint of the present and future traffic needs and how Avenue 'A' relates to other phases of the city plan. Before, however, money for this widening is spent, it is important to know whether such a project is more, or less, necessary than an addition to the sewage disposal system, or a hospital, or possibly a grade separation, or any of a number of other municipal projects which may be imperative at this time.

"The average city planning commission believes properly that its purpose is to further city planning, and this results in

such commission's setting forth the arguments for its particular projects while other boards or persons are setting forth arguments for their particular projects which are not included in the city plan. Consequently, municipal development is seldom carried out according to priority of need, but rather in accordance with the force and prestige of the agencies backing the individual projects.

Getting the Aid of the Community's Key Men

"It would therefore appear to be desirable to set up a lay committee composed of the key men of the community, which committee shall have as its members no persons who are in any ways connected with a public office. Neither should such a committee be appointed by a public official. The duties of this committee would be to secure from the planning commission, the school board, the sanitary commission and all other boards, officers and municipal agencies, the projects which these various agencies have before them, the relative importance which these agencies place in their particular projects, their probable cost, and the method by which they may be consummated. In addition to this, the citizen's committee should know what it is costing the city to serve its citizens today and what it probably will cost during the next ten years. Having all this information before it, the committee may then act as an unofficial judicial body and prepare a tentative program for development during the next ten years based upon expert advice as secured from the city planner and the various municipal agencies and based upon the probable increase in population and the probable increase in revenue and bonding ability of the municipality over the ten-year period. After this tentative program has been developed, the committee should call before it the various agencies, for a final check, and permit them at that time to show cause for any variation in the tentative program.

"It is recognized that the procedure just outlined will take considerable time, but when the program is finally developed, there will exist a report made by an unbiased body which is composed not only of business and industrial leaders, but incidentally of the group of men who benefit most by proper municipal development and who in the final analysis pay most for municipal development. Such a report or program when submitted to the city administration should carry sufficient weight so that with the exception of a few minor variations which the administration would probably wish to make, it will be approved.

"After the program as suggested above has been submitted to the city administration, it should be passed in the form of a simple resolution which should simply resolve that the program herewith attached will make for the general betterment of the business, industry, health and well-being of the citizens of the community, and that the program is financially and economically practical, with the further resolution that the administration pledges itself that in so far as it is administratively possible the program will be put into effect.

How and When Shall the Bonds Be Issued and Spent?

"It is probable that money in excess of that received from taxation will be needed to carry out the program and that a bond issue will be required. Such a proposed bond issue should include all the necessary projects on the program and definitely state what part of the bond money shall be spent for each project during the life of the program (ten years) and also what part shall be spent each year.

"At this point it would probably be desirable to place before the electorate the question of whether or not the total bonds called for by the program shall be issued. This proposition can be so worded on the ballot that an affirmative vote for the bond issue signifies a definite approval of the program. There should also be included the proviso that while the vote is for the authorization of the issuance of bonds for the entire program, only one-tenth of the bonds may be issued in any one year. There are several advantages in this procedure. It was stated above that the various municipal agencies and civic organizations will naturally promote their own particular projects. When the matter comes to a vote, they will be likely to vote for the entire bond issue because it includes the projects they are most interested in; while, on the other hand, if bonds are voted annually for a specific project, those who are not interested in that particular project are very likely to vote 'no.' Carrying this farther, it is often found that a well-organized campaign, and pleasant weather conditions on election day, carry a bond issue that is not particularly worthy, whereas a bond issue for a necessary project may, because of lack of organization or other causes, fail of passage.

"The provision that not more than one-tenth (this figure may be varied to meet local conditions) of the total issue may be spent in one year, prevents a single administration from going on a wild orgy of expenditure and thereby furthering its own political ends by great accomplishments, and it also results in a deterrent to that administration which wishes to gather funds through a false economic program. The present administration receives the glory of beginning a comprehensive development, and each succeeding administration receives the glory of carrying into effect many necessary projects. Also, political office-seekers cannot reasonably criticize the present administration through the medium of the program, because the present office-holders simply put their approval upon a program arranged by the business and industrial leaders and also approved by the affirmative vote of the entire electorate.

"It is recognized that certain emergencies are likely to arise during a period of ten years which might change the urgency of the various projects or might inject new important projects into the program, but these conditions can be handled by continuing in existence the lay committee which formulated the original plan. There would be nothing for the committee to do, however, except in an emergency.

"It should be recognized that each administration has a specific job to do during its particular term of office and that no attempt is made for one administration to bind another.

"After the plan, as suggested above, is once started, it is quite likely to be continued, because after certain projects have been carried out according to the program, any unreasonable change by an administration would naturally meet with considerable resistance from the persons or agencies which have patiently waited a number of years for their project to be completed, and it is likely that sufficient pressure will be exercised to force the administration to carry out, within reasonable limits, the original program.

"It is well recognized that the procedure suggested is far from perfect and will not be applicable to all municipalities without substantial variations, but it is more likely to secure proper civic development than the haphazard procedure now in use."

Offender Fined for Throwing Rubbish on State Highway Right-of-Way

THE state of Indiana recently called upon the courts to assist it in keeping its roads and roadsides free of refuse. The case arose through refusal of a delivery driver of South Bend to refrain from throwing rubbish from his truck onto the state highway right-of-way, although he had been repeatedly warned by officials. He was prosecuted under the law which reads:

"Whoever throws, puts, dumps, or leaves any tin cans, old iron, brush, boxes, tools, machinery, vehicles, rubbish, brick, wood, logs, glass, glassware, glass bottles, glass jars, or débris of any kind or character whatever, in, upon or within the limits of any public highway, except by direction of the Township Trustee, Superintendent, or Board of County Commissioners, shall, on conviction, be fined in any sum not to exceed $50."

The defendant was fined $10.50.

"With state highways serving 90 per cent of the motoring public direct, patrolmen have sufficient work ahead of them to keep surfaces conditioned, berms dragged, and shoulders free of weeds and grass, without having to gather up débris tossed into the roadway by careless and unthoughtful people," said A. H. Hinkle, State Highway Maintenance Superintendent, who has instructed several hundred patrolmen not to hesitate to file affidavits against such offenders. He declares that "much of the safety of high-speed traffic today depends upon unobstructed sight distances, and obstacles such as trash and rubbish dumped into a high-speed road might easily be the direct cause of a serious accident."

Refuse Collection and Disposal in Maine Resort Villages Facing the Ocean Shore

By ALFRED MULLIKIN
Assoc. M., Am. Soc. C. E.,
Town Engineer,
Mount Desert, Maine

IN 1926 a careful study was made of the refuse problem in several villages in the town of Mount Desert, Maine, with a view to completely changing the old method of refuse collection and disposal to one that might prove more satisfactory to the taxpayers.

There are a number of villages in the town, the principal ones being Northeast Harbor, Seal Harbor and Somesville, along the ocean front on the island of Mount Desert. This island is connected to the east coast of Maine by a concrete bridge. The town of Mount Desert occupies a central strip of land across the island and has an area of about fifty square miles. The largest village, Northeast Harbor, is about fifty miles southeast of Bangor.

The winter population is about 2,000, and is increased by summer residents to about 5,000. The total valuation of the town in 1929 was $3,877,410.

The Problem Is Peculiar

The collection of garbage and rubbish for a seacoast town having many large summer houses with a variable population, requires a definite system and program adjustable to its needs. When a satisfactory sanitary refuse collection and disposal service is desired, it is not always an easy matter to please the public. Moreover, the public is not necessarily interested in the method used, so much as it is in the service rendered. A relatively inexpensive system that can be operated without creating a public nuisance or annoyance to the taxpayer may be just as effective as a more elaborate system requiring a considerable outlay of public money. A little help from a sanitary engineer may be a great help to a town or community in effectively and economically directing municipal officers in the right direction in solving their municipal problems.

It is shameful that many villages that could otherwise be made beautiful, have allowed municipal waste to accumulate in such a manner as to create unsightly and unhealthful refuse dumps. These blots on towns depreciate them in scenic value. There may be various reasons why such insanitary conditions exist—lack of municipal interest, changes in political control, or failure of the community to provide suitable places for the disposal of refuse. Then again, several dumps may exist that are under private control, with the result that usually a condition of nuisance is created, not directly under municipal responsibility. Almost all these conditions at one time or another have existed in some of the villages in the town of Mount Desert, and finally, several years ago, the insanitary and unsightly places became so objectionable to the public that a complete change was made.

The former system was primarily an incomplete scavenger system. Although the majority of the people are public-spirited enough and possess sufficient pride to help maintain an attractive community, there were, of course, others who did not exercise this privilege, thereby creating a public nuisance.

DIRECTIONS FOR GARBAGE AND RUBBISH REMOVAL FROM BOATS

NOTICE TO CAPTAIN OF BOAT

It is forbidden to dump refuse into the tide water of Northeast Harbor, Seal Harbor and Somes Sound between July 15th and September 15th. The town has provided a harbor patrol boat which will call and receive all refuse daily from your boat, if necessary, during these months. You are requested to separate garbage, such as scraps of meat, vegetables, fruit or other organic matter, from the rubbish, such as waste paper and boxes.

The patrol boat is provided with covered metal containers so as to avoid unsightly or unsanitary conditions from arising. In order to receive this service will you please notify the harbor master or telephone to the municipal building and leave the name of your boat and the location of its mooring. There is no charge for this service.

By order of BOARD OF SELECTMEN,
Northeast Harbor
Town of Mount Desert, Maine.

Name of Harbor Master

July 1928, A. M.

DIRECTIONS FOR GARBAGE and RUBBISH REMOVAL

Notice to Owner or Householder

Upon arrival summer residents should notify the Municipal Office, Northeast Harbor, Telephone 178, so that the Town collectors may be instructed to call for refuse. This service begins the first Monday in June and the refuse will be collected daily when necessary and disposed of without charge from resident and non-resident cottages, houses, hotels, stores and shops.

PLEASE PROVIDE THE FOLLOWING CONTAINERS:

Metal Garbage Can with Cover	For garbage such as table waste, scraps of meat, vegetables, fruits, lobster shells or other decomposable organic matter.
Metal Ash Can	For ashes only.
Two Rubbish Barrels or Cans	One for burnable or combustable materials, such as rags, waste-paper, flowers, boxes, etc. One for non-combustable materials, such as metal, broken glass, tin cans, crockery, etc.

RULE:—The above mentioned refuse may not be collected if mixed together as one, for they are disposed of separately by the Town. The Town will not collect leaves, brush, stone, plaster or other material resulting from building construction or road work, the Town will permit the owner to haul at his own expense such materials to the town disposal site at the Sound where it will be received by the man in charge. Private garbage cans should be washed daily with water containing chloride of lime, as unsanitary containers may not be emptied by the Town. Private containers will not be taken away by the collectors, the Town provides its own.

You are earnestly requested to have the above directions observed for it is only by a systematic arrangement that the Town can render efficient service.

By order of TOWN ENGINEER
Northeast Harbor
Town of Mount Desert, Maine

Approved by, BOARD OF SELECTMEN
July 1928, Apr. 1929.
A. M

Exhaustive Study Made

A study of the insanitary conditions was made in the three larger villages, namely, Northeast Harbor, Seal Harbor and Somesville, and a carefully prepared and exhaustive report was submitted to a committee of seven members, part of whom were summer and part winter residents, appointed by vote of the town. The report was fully sustained by facts, figures, and photographs showing the existing conditions, together with a plan and estimate of the probable cost of operating a simple, relatively inexpensive but more satisfactory method of refuse collection and disposal for a seacoast summer resort town.

The committee, in expressing its opinion as to the advisability of the town's raising sufficient funds to create a systematic and sanitary collection of garbage and rubbish in the town, said in part:

"First: The committee found the existing conditions a menace to health and a detriment to the summer resort business of the town, and quotes from the Town Engineer's report, made in 1926, as follows:

"'The municipal officers have been continually annoyed by complaints regarding the insanitary conditions existing in town, due to refuse dumps which are increasing in number and size yearly, causing an increasing menace to the health of the community, and a distinct public nuisance. The promiscuous and haphazard method of handling the matter has reached a stage

THE TYPE OF COLLECTION TRUCK USED IN THE TOWN OF MOUNT DESERT, MAINE

that should not be tolerated. There are no rules or regulations for the collection of refuse. Collection is by scavengers or by the people themselves at infrequent intervals, and with no systematic control, under which system there is a violation of the laws and ordinances pertaining to sanitation, resulting in the accumulation of many unsightly dumps which we are gambling with against the health and comfort of the residents. There should be ample appropriations for the most practical and sanitary methods of garbage collection and disposal as a safeguard against epidemics of disease and the elimination of decomposing organic matter with its inconveniences. Scrupulous handling of the refuse situation is of fundamental importance in a community or town of this size and importance.'

"Second: The committee has considered the various methods of collection and disposal suggested in the Town Engineer's report, viz., the scavenger system, the contract system, and the municipal system, and agrees with the opinion expressed in that report that the municipal system under proper supervision is the best, most efficient, and most economical.

Third: The committee has examined various places suggested as disposal sites and finds the most satisfactory place to be on the property of the town or property to be acquired by the town.

"The committee therefore recommends that, commencing with the spring of 1927, the town undertake the collection and disposal of garbage and refuse from the villages of Northeast Harbor, Seal Harbor, and Somesville, and provide itself with the necessary equipment; also that the funds for the execution of the work be raised by general taxation. It also recommends that the town take immediate measure to clean up existing dumps and provide a place for the disposal of garbage and refuse and property owned, or to be acquired, by the town, located on the shores of Somes Sound, near the northerly end of the Sargeant Drive."

Three Years of Successful Operation

The present system has been in successful operation for three years. The influx of summer residents begins about June 1, and the increased population exists until about October 1. During these months a systematic collection and disposal of garbage, ashes and rubbish is provided. This system consists of daily collection of refuse under the municipal system. The town provides labor, trucks and covered metal containers which are placed in the trucks to hold the garbage. Rubbish is placed in the rear of the truck, together with ashes. Strange to say, there is a very small amount of ashes available. Each owner or household receives a copy of "'Directions for Garbage and Rubbish Removal," shown on page 93.

About one week prior to the collection of garbage, a general public cleaning of the town is begun. This is advertised locally as "Clean-Up Week," and notices are placed in all post offices.

Clean-Up Week

During Clean-Up Week in 1929, the trucks hauled from the villages approximately 100 loads of rubbish, including abandoned automobiles and unwieldly material, to the disposal site. The total mileage of the three town trucks assigned to this work was 785.

During Clean-Up Week only inorganic material is taken, that is, any kind of refuse not including garbage. A superintendent has charge of each village. Trucks from five different villages haul the rubbish which has accumulated during the winter months, and from summer cottage housecleaning, to the town burning plant. The boxes and paper are destroyed by fire. Abandoned automobiles and other metal are placed on low ground, compacted and filled with ashes, and covered with rocks and gravel.

The labor in 1929 consisted of a superintendent, a helper, and a truck driver for each of the villages. The same driver and helper were used in two of the small villages. One man was placed at the dump, making a total of thirteen men. The total cost for labor and gasoline was $717.41.

After Clean-Up Week a voluntary committee inspects the villages in town and reports any private or public rubbish dumps maintained after the campaign is completed. By carefully planning the work and by ample public notice, satisfactory results have been obtained. The public cooperate better each year, as they become better acquainted with the system, and the villages in town appear clean and new before the arrival of visitors. The collection of garbage and its disposal immediately fol-

THE COLLECTION AREA AND GARBAGE DUMPING GROUND

low the Clean-Up Week work for which notices are posted.

Details of the Collection Equipment

The automobile trucks are provided with rack bodies as shown on page 94. The bodies vary in length from 8 to 12 feet and are all 6 feet wide inside measurement, so as to accommodate a row of cans 4 feet in width, stacked two high. The truck equipment consists of one 2-ton and one 1½-ton truck for use in the village of Northeast Harbor; one 1-ton truck for use of one-half the time in the village of Northeast Harbor, and one-half time in the village of Somesville; and one rented 1½-ton truck for use in the village of Seal Harbor.

The sizes of the trucks purchased by the town were determined by the maximum quantity of garbage per day collected on each route during the height of the summer season. Based on the average weight of a can full of garbage, for a route from which were collected from 25 to to 40 cans per day, a 2- to 3-ton truck was recommended, and a 2-ton truck selected. For a route from which were collected from 20 to 30 cans per day, a 1½- to 2-ton truck was recommended, etc. In each case the municipal officers selected the smaller size truck. During the collection of garbage and rubbish, each truck is provided with a driver and two helpers, except for the 1-ton truck, which has only one helper. Labor is employed on a full-time basis. Drivers receive $28 per week, and helpers $25 per week, including Sundays.

The town as a whole is of a suburban nature, and cottages, stores, and hotels are widely distributed. The average amount of garbage for each person in town was assumed to be 70 pounds for an average summer season of 100 days. That gave for a population of about 3,000 in the village of Northeast Harbor, 210,000 pounds, or about 168 cubic yards, that is, approximately 1¾ cubic yards of garbage per day; for the village of Seal Harbor, with a population of about 1,250, about ¾-cubic yard of garbage per day; and for the village of Somesville, with a population of about

GARBAGE AND REFUSE DISPOSAL EQUIPMENT AT MT. DESERT

1. The town wharf under construction. 2. Full cans on one side and empty cans on the other side of the wharf. The floor of the wharf is at the same height as the truck body. 3. The rail grate of the refuse incinerator. 4. The draft opening below the grate of the incinerator. 5. The ramp leading to the incinerator

550, about ¼-cubic yard of garbage per day. Therefore, from one to two trucks for a community was considered to be sufficient.

The actual quantities of garbage removed from the villages of Northeast Harbor, Seal Harbor, and Somesville during the summer season, 1929, were somewhat different, as follows, divided into five routes. The figures represent full cans of garbage holding 20 gallons each:

Northeast Harbor	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	
Route						
1. 2-ton truck	207	780	1,036	569		
2. 1½-ton trucks		471	705	278	135	
3. 1-ton trucks		147	170	67		
Totals	207	1,398	1,911	914	135	
Grand total						4,565

Seal Harbor						
Route No.						
5. 2-ton truck	39					
5. 1½-ton truck	121	60		197	64	
5. 1½-ton truck		363	430	163		
5. 1-ton truck		239	429	176		
Totals	160	662	859	536	64	
Grand total						2,281

Somesville						
Route No.						
4. 2-ton truck	19					
Town 1½-ton truck		100	145	60		
Totals	19	100	145	60		
Grand total						324

Therefore, from the village of Northeast Harbor, in 120 days, 91,300 gallons, or 451 cubic yards, of garbage was collected; from the village of Seal Harbor, in 104 days, 45,620 gallons or 225 cubic yards; and from the village of Somesville, in 82 days, 6,480 gallons or 32 cubic yards; making a total of 143,400 gallons, or 708 cubic yards, of garbage removed from the town of Mount Desert to sea during the 1929 summer season. The figures do not include the quantity of rubbish hauled from town during the same days, which amounted to approximately 360 cubic yards from the village of Northeast Harbor, 300 cubic yards from the village of Seal Harbor, and 160 cubic yards from the village of Somesville.

It is interesting to note, in comparison with the former estimate, that the amount of garbage collected in 1929 from the village of Northeast Harbor averages 4¾ cubic yards per day for the season, for the village of Seal Harbor the amount averages 2⅛ cubic yards, and for the village of Somesville the amount averages 2/5-cubic yard. But, since the population throughout the season is a variable one, except possibly for the month of August, a more definite relation will be made for the disposal on a basis of per capita per day for this month. The height of the season exists during this month, and practically all houses counted are occupied. The estimated population during the month of August in each village is as follows: Northeast Harbor, 3,250; Seal Harbor, 1,450, and Somesville, 400, or a total of 5,100. A resident house averages four persons, and a non-resident house ten persons, including servants and chauffeurs.

In the former estimate the weight of the garbage was based on 1,250 pounds per cubic yard, whereas, from the present garbage data, the average weight of garbage, of 150 pounds (less 18 pounds, the weight of the 20-gallon can) amounts to 6.6 pounds per gallon, or approximately 1,336 pounds per cubic yard. Therefore, for the village of Northeast Harbor, having meat markets, fish markets, lunch rooms and four hotels, in addition to dwellings, for the month of August the quantity of garbage collected amounted to 1,233 gallons per day, or 2.5 pounds per capita; for the village of Seal Harbor, 554 gallons per day, or about 2.4 pounds per capita; and for the village of Somesville, 94 gallons per day, or about 1.55 pounds per capita. For a total population served of 5,100 with a collection of 1,881 gallons of garbage per day during August, the average is 2.4 pounds, or 0.37 gallons, or 3 pints, per capita per day.

Standard Cans for Hotels

A notice was sent to hotels and public institutions showing that the following concession would be made to those cooperating. This notice read as follows:

"Instead of the town collectors emptying the garbage and rubbish from private containers into the town-owned containers kept on the trucks, as is the custom, the collectors will be permitted to make a daily exchange of cans, leaving a washed town can for each full private can taken, provided the hotels furnish enough standard size cans for their own use. Smaller cans or large tubs owned by the hotel will not be exchanged by the town. This arrangement is adopted only when the cans furnished by the hotels are of standard size.

"The town furnishes galvanized iron garbage cans with covers, to be used on the trucks. The standard size can measures 16 by 24 inches inside, and is ordered by that measurement. They hold 20 gallons. When full of garbage, their average weight is 150 pounds. Larger cans were found to be too heavy for men to handle. The town owns about 20 dozen cans of this standard size, and the number is added to each year to replace old and obsolete ones. The standard size can is stacked in the trucks, as well as on the boat. This requires that they all be of the same dimensions. Garbage is transported to sea under contract to a place designated by the War Department, and the cans are washed at sea. The above arrangement should make less work for the management of the hotel in washing containers, and such an exchange of empty for full cans does not interfere with the régime of town work. The owners may stencil or mark their cans for identification so that they can be identified at the end of the season, but the town will not assume the responsibility of replacing any can that becomes broken or worn by usage. If your present containers are not of standard size and you wish to continue to wash them, the directions on the circular issued to private cottage and house owners for garbage and rubbish removal will prevail. Cans should be covered."

The Disposal System

The town purchased shore land and built a town wharf out of spruce timber, forming a crib, and filled it with rock, as shown on page 95. The garbage is hauled to the wharf daily by the trucks. Two sets of containers are used, so that transfers may be made on the wharf. For each full can delivered from the truck, an empty washed one is exchanged by the boat crew.

Garbage is transported to sea daily during the summer season under contract, is dumped into the ocean, and in a very short time is consumed by the sea-gulls and fish. No nuisance has been created by this work. The containers are washed at sea and returned the following day to the wharf. The cans are lowered into the boat by a block and fall. A grab-hook fastens to the side handles of the can. The cans are fastened to the boat deck by passing a rope through the cover handles of each can and fastening the ends.

The garbage cans are stacked two deep in the forward half of each truck. A chain is fastened across the center portion of the truck to hold them in place, as may be seen on page 94. The rear end of the same truck is used for hauling rubbish. Before delivering the full cans to the wharf, the trucks stop first at a burning plant and remove the rubbish.

Upon formal application, the town government received a permit, as shown, from the War Department, covering a three-year period, allowing garbage to be dumped at sea in a certain area in Frenchman's Bay about six miles southerly from Egg Rock Light House, and about three miles northeasterly from Little Cranberry Island.

The disposal of garbage at sea was let by contract at $15 per day. It will be noticed that the amount of garbage transported is a variable, increases daily and monthly from June to a maximum in August, then decreases. The collection of garbage on one route was let at contract. The contractor furnished a 2-ton truck, driver and two helpers at $27.50 per day.

The Incinerating Plant for Rubbish

In the burning plant only rubbish is burned. The plant is built of rough stone, walled on three sides, with a ramp on the same level as the grate. The walls are about 1 foot thick at the top, and 2 feet at the bottom. They are 8 feet high. The side walls are 12 feet

long. The rear wall is 14 feet long. Measurements are from center to center. The grate is made of scrap steel rails, 7 rails 30 feet long cut in 10-foot lengths. The ash-pit is about 3 feet deep, and the opening above the grate is about 5 feet high. The draft for the grate is provided from the right side, where an opening about 3 by 10 feet is left in the wall. The remainder of the wall above the opening is supported by two pieces of cut rail.

The cage is made of 1-inch pipe, with an opening at the top into which water is placed daily. The wire netting is of 1-inch mesh and prevents the spread of flying particles. The cage is about 14 feet long, 12 feet wide, and 4 feet high. The fire is kept hot, and not a great deal of smoke is noticed.

The cost of the 210 feet of scrap rail, 58 pounds per yard, was 0.1-cent per pound, plus freight and extra price for cutting, amounting to a total of $44.50.

The burning plant is operated by two men. There is no odor or nuisance of any kind. The burning plant and wharf are close together and are kept in a neat and orderly manner by these two men in charge. The men work together, but when a truck is unloading, one man remains at the burning plant and one at the wharf to assist drivers and helpers.

The burning plant is 3 miles from Northeast Harbor, 4.2 miles from Somesville, and 7 miles from Seal Harbor.

Service Is Sanitary and Continuous

The main feature, however, which is kept in mind in the collection and disposal is the sanitary and continuous service to the town, irrespective of the difference in cost of just removing the material. It has been decided that the best service and not necessarily the cheapest service is desirable and more important in a sanitary problem, especially the removal and disposal of organic wastes that may easily create conditions of public nuisance. Although good results have been obtained when some of the collection routes were covered under contract with strict municipal supervision, the town has found it more economical to own equipment and hold the labor employed responsible for the results.

After the first year of operation, the service being new, considerable political objection was voiced and a petition was granted to receive bids on a high-temperature incinerator. After considerable investigation and about eight committee meetings, a public vote to build a 25-ton plant having a capacity of 8⅓ tons in 8 hours, was rejected. The lowest bid to furnish all material and erect a plant according to certain plans and specifications, on a site selected by the town, ready for operation, in 1927, was $28,600.

Truck Operation

During the summer collection, the mileage of three of the trucks was as follows: for the 2-ton truck, 2,129 miles; for the 1½-ton truck, 2,172 miles; for the 1-ton truck, 1,395 miles. The total maintenance and repair of these three trucks amounted to $531.53.

For the 1930 summer season a 3-ton truck has been purchased by the town, which will be used in the village of Seal Harbor for garbage collection, to replace the rented truck formerly used. This truck will also be used on road work and snow-plowing at other times of the year.

The number of cottages and dwellings each truck visited were:

Route 1, Northeast Harbor, 151 cottages and four large hotels; 2-ton truck.
Route 2, Northeast Harbor, 153 cottages and stores; 1½-ton truck.
Route 3, Northeast Harbor, 127 dwellings; 1-ton truck, time divided.
Route 4, Somesville, 70 cottages and one hotel; 1-ton truck, time divided.
Route 5, Seal Harbor, 175 cottages, stores, and one hotel; 2-ton truck rented.

Town Appropriations and Costs

The cost of garbage cans for the town use was $46.55 per dozen delivered.

For Clean-Up Week work in five villages, the amount appropriated by the town was $700. The amount expended was $448.69.

For refuse collection and equipment such as cans, repairs and maintenance of trucks, the amount appropriated was $6,000, and the amount expended was $5,788.51.

The division of expense was as follows:

Collection in the village of Northeast Harbor	$2,508.23
Collection in the village of Seal Harbor	2,070.16
Collection in the village of Somesville	293.59
Truck maintenance, three trucks	531.53
Equipment, cans, misc.	385.00
Total	$5,788.51

For disposal of rubbish by burning, and shipping garbage to sea, the amount appropriated was $3,000.00, the amount expended was $2,990.49, of which $1,630.78 was for garbage disposal to sea, and $1,359.71 was for burning rubbish at the burning plant.

Disposal of Refuse from Boats

In connection with this work, the villages in the town are seacoast resorts, and many yachts and watercraft have refuse which they wish to dispose of. This is one of the duties which have been delegated to a harbor master in each harbor. He collects the refuse from the boats and patrols the shores and waters, removing floating débris that may drift ashore. The garbage is transported to the garbage boat. Instructions are posted and sent to owners of vessels.

The Public Defender as an Aid to Criminal Justice for the Poor Man

THE right of the accused in a criminal action to be represented by counsel is guaranteed both in the Constitution of the United States and in that of all but two of the states. "*But this is not worth much* if the *prisoner cannot afford to pay for such assistance*," says the Detroit Bureau of Governmental Research in *Just a Minute*, its periodical pamphlet, for April, 1930, which is entitled "About the Poor Man's Lawyer."

It is often assumed that legal ethics require the bar to defend the indigent accused, much as doctors do not refuse medical treatment to the poor; and this is true in some communities, the report states. But in many cities judges often hesitate to impose such free service upon attorneys.

"The time of the experienced counsel is very valuable; the services of the middle-aged failure are useless; and the able shyster has ways of receiving fees that contravene the best interests of society. Such conditions have forced upon the bench and bar alike the conclusion that assigned attorneys must be compensated if an adequate defense is to be had. Accordingly, about half of the states have provided by statute that assigned counsel in felony cases be paid by the state. . . . In actual practice the service of such attorneys is sometimes perfunctory, the assignment of cases may constitute petty political patronge, and the total cost runs into large sums of money.

"For these reasons it has appeared to some that real and at the same time economical justice cannot be done unless a trained and salaried legal force is available for the defense of the poor to offset society's powerful agent, the prosecuting attorney. This feeling has led to the development of the Public Defender, a salaried state officer whose duty is to give legal advice and representation to indigent persons accused of crime.

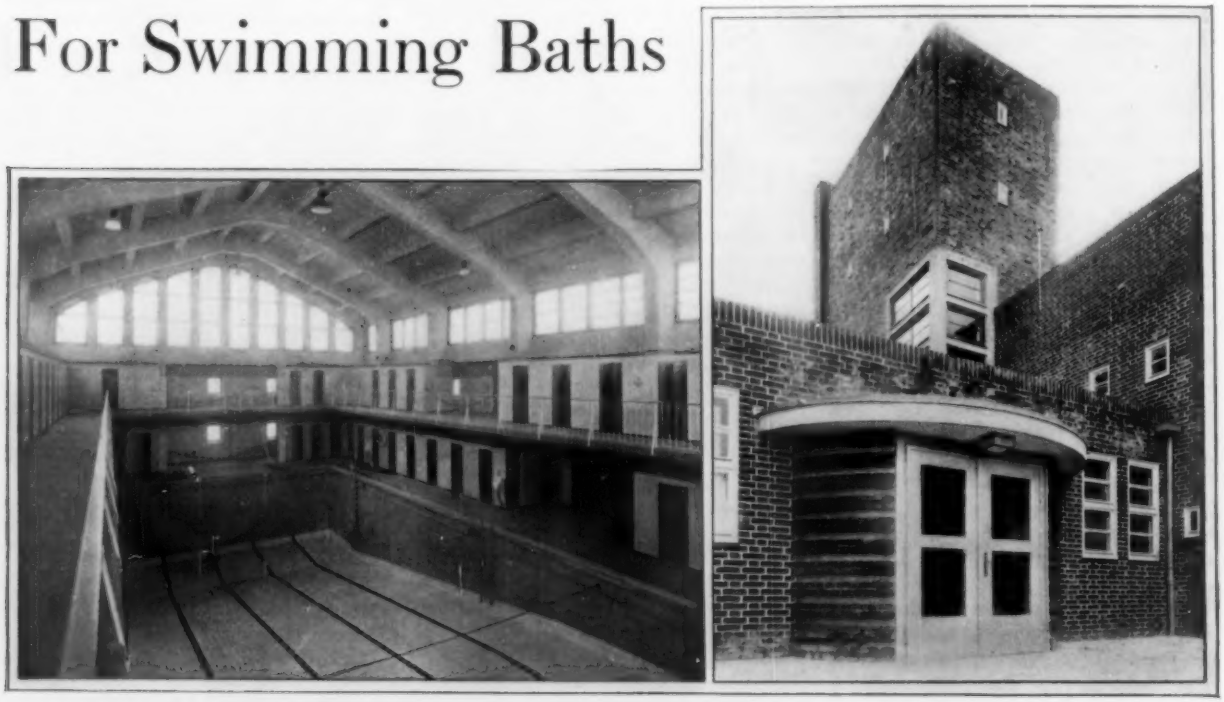
Pro and Con

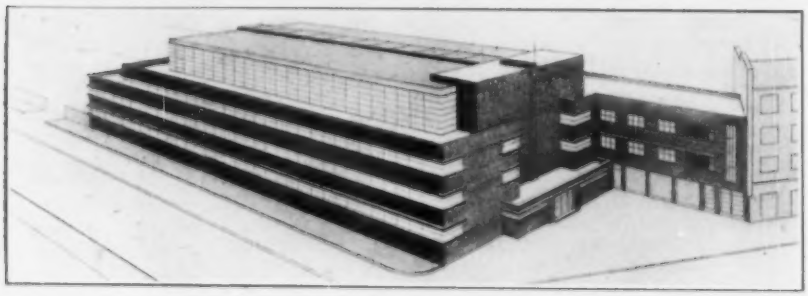
"The proponents of the Public Defender system urge that under it better legal services are secured; expense is reduced; improved court tactics result in a saving of time in court; every indigent person is assured of friendly treatment and adequate legal aid; and if the defendant is found guilty, the judge in fixing the sentence will have the advice of a socially trained officer familiar with the facts in the case; or, if acquittal results, the defender can often assist his client by cooperation with various social agencies.

"Opponents deprecate the establishment of a new public office, fearing the appearance of another camel's head under the tent.

"Public Defenders are now found in Los Angeles, San Francisco, Portland, Ore., Omaha, Columbus, Youngstown, Minneapolis, Memphis, Hartford, New Haven, New London, and several smaller Connecticut cities, perhaps in others."

Germany Adopts Modern Architecture For Swimming Baths





The Luckenwalde Bath

"Function dictates form." This is the formula of modern architecture. It is admirably illustrated in the new German baths; in none better than the modest-scale structure of which exterior and interior views are shown above

A Berlin Proposal

This is the design for the Pankow District derived from the competition described

By PROF. DR. E. SELIGMANN

DIRECTOR, CHIEF PUBLIC HEALTH OFFICE, BERLIN, GERMANY

PUBLIC baths in Germany and in the United States have been developed along entirely different lines. This can be explained by the dissimilarity of the respective standards of living, of economic and social conditions and by the divergence of conceptions regarding the tasks of urban authorities and private initiative, respectively. In the big American cities at least 80 per cent of all dwellings have their own bathrooms; in Germany the corresponding figures lie generally below 30 per cent. In the United States a great number of clubs, hotels and other establishments are provided with private swimming pools, whereas in Germany nearly all swimming pools are owned either by the cities or by large welfare organizations. In the United States swimming baths are often connected with gymnasiums, whereas the modern popular bath in Germany is a combination of swimming pool, tub and shower baths and often has a special division for medicinal baths.

One of the consequences of this development can be seen in the fact that almost all German swimming baths have been established in separate buildings, constructed solely for this purpose, and that the architects have in the past taken advantage of the opportunity to put up pompous edifices and to use materials and designs which seemed more suitable for a palace than for a building of public usefulness. This has resulted, naturally, in a gradual increase of the expenses for buildings of this kind, and finally the outlay became so heavy that the cities, which carried this burden, found it impossible to finance

▼ *ON the eve of Berlin's competition for the development of modern swimming-bath buildings recently, Dr. Seligmann visited America. His mission was to discover what contribution the nation-wide swimming-pool development here had to make to his city and his country. His account of the German movement, written especially for readers of* THE AMERICAN CITY, *makes clear that the functionalistic exterior designs of the buildings described, the lighting and ventilation, and the use of new construction materials are worthy of serious consideration in our own country.*

a sufficient number of bathing establishments. It was nothing unusual to see the cost of construction go as high as two or three million marks, which was of course entirely out of keeping with the economic situation in Germany, as well as with the increasing popular demand for physical training, recreational and cleaning facilities in connection with the swimming baths.

The Municipal Department for Physical Culture in Berlin was the first to make allowance for this situation by drafting the following program:

Creation of moderately priced, strictly sanitary utilitarian baths.

Avoidance of costly and pretentious constructions.

Adequate economy with regard to dimensions and decoration.

Suitable distribution of the different divisions and flexible service regulations, allowing for a varying number of visitors of either sex.

Structures in accordance with the laws of hygiene but without waste of space; abundance of light and fresh air; and separate shoe and barefoot passages which the visitors are compelled to use on their way through the washrooms to the swimming pool, which latter is entirely separated from the cabins or locker tiers.

A number of baths are under construction in accordance with these principles; several have already been completed. It becomes readily apparent under the new program that usefulness can well be combined with beauty. In the exterior designs utilitarian forms have taken the place of the classic styles and it can certainly be said that the artistic effect is satisfactory.

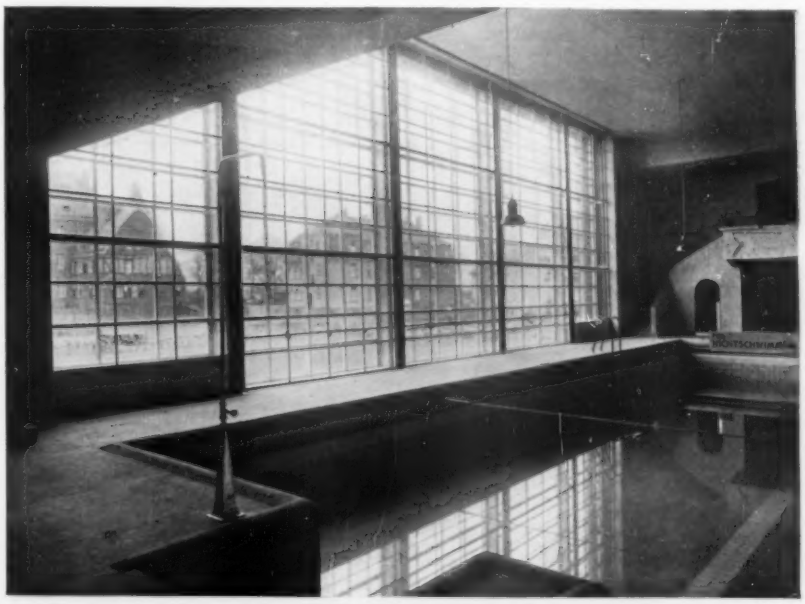
The new building in the town of Luckenwalde has been constructed in accordance with modern ideas, and represents a vast improvement over the old architectural ideas, especially in its improved lighting system. The swimming pool at Fechenheim (Frankfurt-on-the-Main) has a remarkable feature in that it is enclosed on one side by a glass partition which can be entirely removed in summer; thus the pool can be converted into an outdoor center connected directly with the adjoining park. A very modern conception of design has been realized in the huge 150-foot swimming pool of the city of Stuttgart. Floods of light find access between the bold arches of the glass-walled structure.

The bath in Luckenwalde, which is a town of 25,000 inhabitants, demonstrates in an especially effective manner our contention that moderate means of financing need not interfere with the good taste, substantiality, and exterior attractiveness of modern architecture for municipal building purposes. Both an exterior and an interior of this building are reproduced on the facing page.

Many good and interesting plans were prepared for a prize competition arranged by the city of Berlin with the purpose of obtaining appropriate projects. These demonstrated forcefully that it is possible to arrive at a number of brilliant and efficient solutions of each situation calling for modern construction. For one section of the city, Wilmersdorf, the District Department of Buildings proposed a design fundamentally different from that submitted by the Berlin architects, Sesser and Stelten, though both were notable contributions.

The newest swimming bath in Berlin, recently completed, is the biggest in Europe. This enormous structure, of which a preliminary model was reproduced in THE AMERICAN CITY of December, 1927, (page 805), is entirely enclosed and covered with glass. A removable partition gives access to an adjoining park. This bath, located in the central district of Berlin, was opened to the public in May.

Still other modern bathhouses are being planned for cities in various parts of Germany.



Where They Bathe in Glass Houses

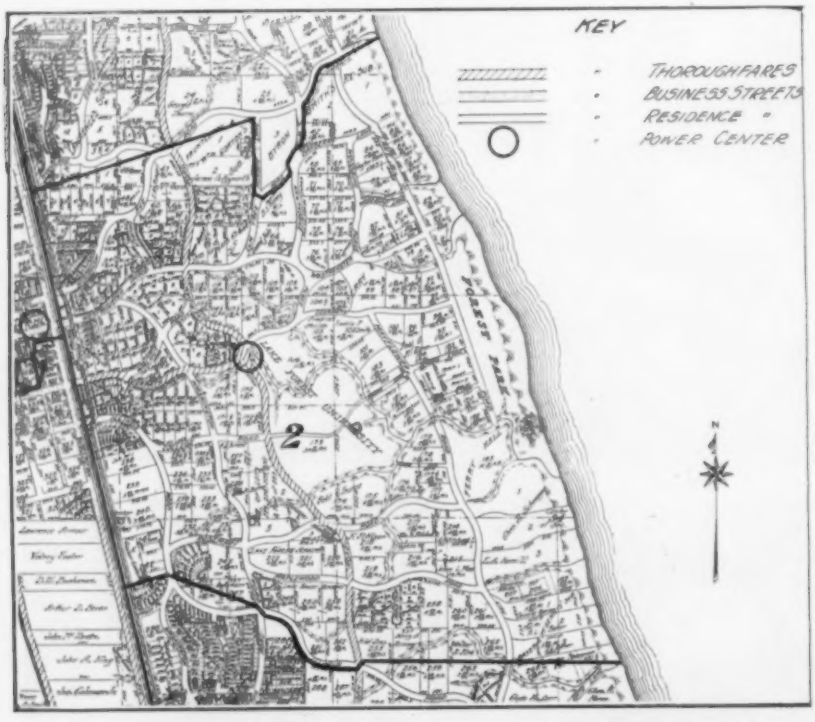
In the new bathhouse at Fechenheim, near Frankfurt-on-Main, shown in the top view, the side-wall panel is removable, giving, in warm weather, the effect of outdoor swimming. The Stuttgart building, shown below, is of glass and metal

Lighting a Residential Suburb

By NEIL N. CAMPBELL* *and* F. A. VAUGHN†

LAKE FOREST, ILL., has just adopted a comprehensive plan for lighting the streets of the city by means of an electrical ornamental street-lighting system, which will replace the old gas and naphtha lights, but retain the more modern electrical lighting units now in use. The plan was developed by the authors, working with a special local committee on street lighting, and contains many unusual features which are the result of the engineers' application of the latest modern principles of street lighting, as promulgated by the Illuminating Engineering Society's Committee on Street Lighting, to the local problems arising from the fact that Lake Forest, while a thriving suburb of metropolitan Chicago, is in reality a quiet, unassuming, uncommercial, college type of town. Metropolitan street lighting must be modified to meet less imposing demands, but to meet them efficiently and economically in accordance with progressive illuminating engineering practice. A survey and report was made by the Lake Forest Committee on Street Lighting under the direction of the authors, and this article is largely based thereon.

Lake Forest lies north of Chicago, on the western shore of Lake Michigan. It contains many large estates and is heavily wooded for the most part with a natural growth of forest trees. Practically all of the streets are winding, with many trees scattered in the parkways at various distances from one another and from the edge of the pavement or sidewalk, thus retaining the natural forest distribution. The houses in general are widely separated and are set well back from the street. Many of the properties are protected by a heavy planting of shrubs, evergreens and trees, and in a few cases by walls.



MAP OF ONE SECTION OF LAKE FOREST, ILL., SHOWING CLASSIFICATION OF STREETS

This condition affects very strongly the visibility in the streets and on the sidewalks. It was therefore doubly difficult to provide adequate visibility without more light than the general street conditions would warrant.

The major purposes of street lighting have been summarized as follows:

1. To promote safety and convenience in the streets at night through adequate visibility.
2. To enhance the community value of the street.
3. To increase the attractiveness of the street.

The first of these purposes applies to all classes of streets and is the vital reason for a better street-lighting system. The second and third purposes apply more particularly to the business streets and thoroughfares, but also in a measure to all streets.

In the preparation of the Lake Forest plan a careful study of the existing street-lighting system and its cost of installation, operation and maintenance, was first made.

Comparison of Electrical Supply Sources

Three types of street-lighting power and distribution systems were considered in the preparation of the plan for Lake Forest:

1. Municipally owned and operated power station and distribution system, in which the city constructs, owns and operates an electrical generating plant and distribution system of sufficient capacity to supply the street lights, the water pumping-station, the sewage pumping-station, public buildings and all other city uses.

2. Centralized distribution system with Public Service Company energy contract, in which the city purchases all electrical energy at one central point and constructs, owns and operates its distribution system from such central point to the various points of actual consumption.

3. Decentralized distribution system with Public Service Company energy contract, in which the city purchases electrical energy at various power centers as points of supply, respectively, to each street-lighting district, pumping-station, public building or other energy-consuming installation, such electrical energy to be purchased at a special rate on the basis of the combined total consumption at all meters, and in which the city constructs, owns and operates segregated distribution systems for each district.

A careful analysis of these three systems reveals that under the conditions in Lake Forest and the total amount of electrical energy required for all city uses, the decentralized distribution system is the most economical.

Advantages of Decentralized System

Some of the advantages to be gained by the city through the adoption of the decentralized system are:

A substantial saving over either of the two other plans in cost per kilowatt-hour is secured.

The entire street-lighting plan is reduced to its simplest form. The system will be divided into a number of units or districts, each supplied with electrical energy at its own power center through the Public Service Company's power cable from the company's nearby manhole or pole, where the energy will be measured

* City Engineer, Lake Forest, Ill., and Member of Lake Forest Committee on Street Lighting.

† Consulting Illuminating Engineer, Milwaukee, Wis., and Member of Committee on Street Lighting of the Illuminating Engineering Society.

STREET LAMP FOR BUSINESS DISTRICT

for that district, and the entire energy for all centers will be paid for on the same summation basis as if metered at a central point.

If the decentralized system is installed initially, maximum flexibility and consideration of future possible changes in plans are secured, as the system can easily be changed into either (a) the centralized or (b) the complete municipally owned system, by merely adding the city's own distribution system and substation for the former and the distribution system and generator station for the latter, in one or in two steps.

The city would not have to provide distribution lines between the central station and the power centers in each district, nor the land and building for a central station, nor the equipment necessary in the central station to operate and control the lights in the several districts.

The continuity of service for the street-lighting system as a whole is less liable to interference.

The simplest and most successful "hook-up" with the public utility's service is feasible with this plan, as the company simply furnishes energy at each point of consumption to the consumer, who owns and operates his own installation.

Classification of Streets

In order that each street might be adequately lighted, a careful study of the street conditions throughout the city was made and the streets divided into the following classifications:

1. Business streets
2. Thoroughfares
3. Residence streets
4. Highways

Under the classification of business streets are included all streets within the business zone as established under the zoning plan for Lake Forest. All streets in this classification require a higher intensity of light, which is accomplished by placing the lights at closer intervals and using a larger lamp.

Although Lake Forest has no outstanding thoroughfare, nevertheless certain streets, because of the fact that they carry heavier traffic than the average residence street and serve to conduct through traffic through Lake Forest, have been classified as thoroughfares. Most of these streets are typical residence streets, but because of the greater density of traffic they require more light.

In the classification of residence streets are placed all other streets in the city except those hereinafter mentioned as highways. Because of the physical character of these streets and the fact that most of the streets have sidewalks on only one side, special consideration of the distribution of the light was given from the standpoint of the pedestrian. Through the media of the light-control equipment selected and the proper location of the lamps, the objectionable excess light which otherwise would fall on the abutting properties and buildings, has been re-directed on the sidewalks and pavements.

The outlying unimproved roads including improved through roads (state highways), are classed as highways. Because of the character of these streets and the fact that the improved through highways carry high-speed and at times very dense traffic, it is necessary to illuminate these highways at an intensity that will promote safety to a maximum degree. This is best accomplished for this type of traffic by placing relatively high-candlepowered lamps at high mounting heights and at relatively wide spacing, equipping the lamps with proper light-control equipment and placing them on extension brackets over the pavement. This arrangement is conducive to uniform illumination with a minimum of glare at relatively small expense.

Districts

In preparing the street-lighting plan for Lake Forest, the entire area of the city, consisting of some fifteen square miles, was divided into eight districts. In making this division, considerable study was given to the area so that advantage might be taken of the four existing power centers already installed.

Circuits

In the arrangement of the circuits, considerable care was taken so that all the lights would be grouped in such a manner as to reduce the length of cable required to a feasible minimum and to give balanced and uniform circuits.

Cable

Two types of cable were considered—the non-metallic armored parkway type, and the metallic armored type. The non-metallic armored cable consists of a copper wire insulated with a rubber compound and incased in a moisture-proof, protective sheath, consisting of several wrappings of tough, non-metallic tape, or compounds. This cable is constructed to resist the earth acids, alkalis and electrolysis, and is non-inductive. The metallic armored cable consists of a copper wire insulated with a rubber compound encased in a lead sheath and protected from injury by two steel-tape wrappings covered with jute impregnated with asphaltic compound.

The use of the non-metallic armored, underground cable was selected for this installation for the following reasons:

1. This cable is sufficiently well protected against mechanical injury that it should give entire satisfaction under the prevailing conditions at Lake Forest.
2. The cable is thoroughly waterproofed and will resist the destructive action of the earth acids and alkalis.
3. It is thoroughly electrolysis-proof.
4. There are no steel wrappings to rust.
5. There are no steel wrappings to cause inductive losses.
6. The conductor can therefore be economically loaded.
7. The cable is lighter and more easily handled and more cheaply transported.
8. The cost of the cable is less than the metallic armored cable. This cable is laid directly in a shallow trench in the earth without conduits.

Spacing Distance

The lights on the several streets, according to their classification discussed elsewhere, were so spaced and the position of each light so fixed as to provide the best visibility possible with the least interference with or from the trees. Where sharp curves existed, the lights were placed on the outer side of the curve so that the interference of trees and other objects with the drivers' vision would be at a minimum, and the direction of the roadway would be indicated. At street intersections the light was so placed as best to illuminate the corner. At critical intersections where two lights are placed, one light is connected in one

POST AND LANTERN FOR RESIDENCE SECTION

circuit and the other light in a different circuit, so that in the event of a breakdown in one circuit the intersection would still have a reasonable amount of light. The average spacing of the lights as fixed for the various types of streets is as follows:

Business streets	88 feet
Thoroughfares	169 feet
Residence streets	172 feet
Highways	300 feet

Mounting Height

Much consideration has been given by the engineers to the mounting height of the light center above the surface of the street. The trend of good practice is toward higher mounting heights, the distinct advantages of which are in the better distribution of the light in the street, and the fact that the street is made more safe for traffic by the reduction of the blinding effect of glare, the lamp being removed from the center of the field of view. The engineers, after giving careful consideration to the character of the streets and the large number of trees in the parkways and in the adjoining properties, recommended a height for the light center of fifteen feet above the street surface as most satisfactory for Lake Forest. This height will require a minimum of tree trimming in order that the light rays may be directed to the street surface and sidewalk in an efficient manner and will reduce glare to an inoffensive amount.

Post and Luminaire

To maintain the good appearance of a street by day, the street-lighting posts, brackets and lanterns must be of attractive design and of such quality, materials and construction that they will not readily deteriorate and become unsightly or require an undue amount of maintenance to keep them in good appearance. An adaptation of the same design of ornamental concrete standard with bronze bracket and lantern that is now used in two of the residential sections of the city has been decided upon for the residence streets and thoroughfares. In the business districts the design of post and luminaire now used on Lake Forest's streets of this classification is to be continued.

In order to give the maximum illumination of the street and sidewalk for the energy expended and still have the minimum glare, it was the engineers' recommendation that the lighting unit be equipped with a prismatic glass refractor, placed inside the lantern and producing an asymmetrical distribution of light on the ground. This accessory, placed over the lamp, will control and redirect a part of the upper portion of the light rays to the street surface and will also take a portion of the light from the abutting property and houses and place it in the street, where it is more effective and unobjectionable. A clear, slightly diffusing glass, of the "crackled" or rippled, design, is used in the sides, top and bottom of the lantern.

Lamps

The engineers recommended the use of gas-filled tungsten-filament incandescent electric lamps.

On the business streets, 6,000-lumen (600-candlepower) lamps are proposed, both because the engineers find it to be the proper size to produce the desired illumination, and because the existing street-lighting system in the business section satisfactorily utilizes this size.

On the residence streets and thoroughfares, 2,500-lumen (250-candlepower) lamps are proposed, for the reason that it is the smallest size that can be economically used for street-lighting purposes and for the reason that it is already being utilized in the present residence electrical installations. It is also economical as well as convenient to reduce the stock of sizes to carry and maintain to as few as practicable.

This 2,500-lumen lamp placed at a 15-foot mounting height at an average spacing of approximately 170 feet and equipped with refracting glass accessories to control the distribution of light on the sidewalk and roadway, the engineers feel confident, will produce the type, quantity and quality of illumination on the residence streets and thoroughfares that will constitute the best solution of the particular illumination problems to be solved in Lake Forest.

Method of Financing the Installation

Financing by special assessment upon the property benefited is proposed, for the following reasons:

1. It has already been utilized in the previous electrical installation.

2. It is exceptionally flexible, as any district or portion of a district may, upon petition therefor, obtain the installation of the improvement desired through the assessment of the benefits only upon the property benefited, without involving the rest of the citizens, thus facilitating the progressive step-by-step method of developing the complete installation.

3. It permits the city to install the street-lighting system in the fully developed areas without unfairly affecting any undeveloped or uncertain areas.

4. It will make available to any future development or subdivision the benefits of the street-lighting plan, upon its own petition and as soon as ready for it.

5. Each district, or zone, under this method pays only the investment costs involved in its own segregated unit installation of equipment, without regard to the larger or smaller investment in other districts of the decentralized plan.

6. This method of financing is not burdensome, as the terms of payment will be spread over a period of ten years.

Estimated Cost of Operation and Maintenance for the Entire City

The estimated average cost of maintenance per light of the ornamental electrical street-lighting system for the entire city (not including the highway lights), including lamp renewals, cleaning lamps and lanterns, breakage, etc., is $10 per light per year. This cost should be reduced somewhat when the entire system is completed. This anticipation is borne out by the corresponding cost of maintenance at Oak Park, Ill., of $7.30 for 1928. For the purpose of this estimate, however, it seemed reasonable to use this value.

The total estimated cost of maintenance per year is therefore:

1,535 lights at $10 each	$15,350.00
Cost of energy:	
Cost per kwh., entire city	$1.33
Average energy cost per light per year	8.937
Total energy cost, entire city	$13,718.52

Total cost of operation for entire city (not including highway lights), $29,068.52.

Comparison with Present Gas and Electric System

A comparison of the present street-lighting system with the proposed ornamental electric street-lighting system (not including highway lights), the installation to be paid for by special assessments, is shown by the table below.

The city now contemplates the installation of the first unit of its street-lighting system, which includes approximately one square mile in the central residence district.

COMPARISON OF PRESENT AND PROPOSED SYSTEMS

Present System (Gas and Electric) Number of Lights	Rated Candlepower	Total Candlepower	Unit Cost per Year	Total Cost per Year
11 electric	400	4,400	$37.92	$ 417.12
69 "	600	51,400	47.40	3,270.60
87 "	250	21,750	29.88	2,599.56
269 gas	60	16,140	40.80	10,975.20
26 naphtha	60	1,560	54.00	1,404.00
462		85,250		$18,666.48

Proposed System Number of Lights	Rated Candlepower	Total Candlepower	Unit Cost per Year	Total Cost per Year
11 electric	400	4,400	.....	.....
118 "	600	70,800	.....	.....
1,406 "	250	351,500	.....	.....
1,535 electric		426,700	$18.937	$29,068.52

Increase in number of lights, 233 per cent; in candlepower 400 per cent; in cost, 55 per cent.

Indiana's Secondary Roads Successfully Developed

By A. O. HASTINGS
District Engineer,
Indiana State Highway Commission,
Greenfield, Ind.

Indiana Has Had Notable Success With Retread

This article is of particular interest, as Indiana has done much to develop retread paving. The text gives a complete description of methods and materials and outlines the cost.

MANY miles of state roads in Indiana have been developed considerably by intensive maintenance and minor betterments, such as small corrections of grade, line, and drainage, and a heavy application of stones. Applications of road oil or calcium chloride have been used fairly successfully as a dust palliative, and in a few cases where the old roadbed was substantially built, a mat has been formed with road oil and maintained as such with good results. A secondary treatment of the lighter grades of asphalt or tar produces a very satisfactory mat surface, provided the roadbed has sufficient strength built into it to properly support such a surface. The success of any low-cost road surface such as skin treatment, light retreads, etc., depends almost entirely on the foundation upon which they are placed.

Retread Surfaces

If a greater improvement than just a dust palliative is warranted, the retread which the Indiana Highway Commission has been building within the last few years should prove satisfactory. Here again, the type of retread to be built depends upon the condition of the road to be resurfaced. A light retread will carry enormously heavy traffic if sufficient bearing strength is found in the base, while a very heavy well-built retread will not stand up unless it has a base under it. To be sure, the bearing strength of retread is almost directly proportionate to its thickness, with but few variables.

Retread is a mixture of aggregate and bituminous cement mixed in place on the road. The name as used to date covers anything from just a little more than a skin treatment up to a bituminous macadam varying in cost from $1,500 to $7,000 per mile for a surface 20 feet wide.

One feature adopted this year which adds to the strength of the base very materially at a nominal cost, is treating the loose gravel or stone on the old road with a heavy grade of road oil. This causes such loose material to compact and at the same time forms a more or less impervious layer. The mat of oil and aggregate not only serves as an insulation layer, breaking up capillary attraction, but also greatly strengthens the base. There is no type of resurfacing that better lends itself to secondary road development than the retread.

Methods of Constructing a High-Type Retread

Briefly, the steps necessary in constructing a high-type retread are as follows: First, any soft or irregular spots in the old gravel or stone surface should be built up or strengthened by adding sufficient gravel or crushed stone under regular maintenance. This is followed by intensive dragging for a few weeks, using a long-base drag which helps quite materially in producing a smoother and more uniform riding surface. Second, any loose material then on the surface is windrowed onto the shoulder, and the surface is given an application of heavy road oil, approximately 0.5-gallon per square yard. The windrowed material is then bladed uniformly over the surface, and the road dragged intensively.

Third, after the road oil is dry, crushed stone between 2½ and 1½ inches in size is spread over the surface approximately 4 inches in depth. In some cases this stone is spread from end-dump trucks, and in some cases spreader boxes are used. The stone is carefully leveled by the use of a long-base blade grader or harrow, with the final leveling by hand. Fourth, an asphalt cutback or light tar, Indiana specifications requiring asphalt CB or tar TM, is then applied uniformly to the crushed stone at the rate of 0.4 to 0.5-gallon per square yard. The stone and bitumen should then be thoroughly mixed by harrowing. The road is then rolled at once, using a 10-ton, 3-wheeled, self-propelled roller for all rolling. When the bituminous material has cured sufficiently to become tacky, the surface is thoroughly rolled. Usually from one to three days is required for bituminous material to cure to the proper stage for the best results. The surface is then carefully straightedged, and any depressions are patched with bituminous-coated aggregate of the same size as used in the road where practical, and of smaller size where the depressions are slight. The patches are rolled and straightedged to check them. Much may be accomplished to produce a smooth-riding surface by careful patching.

Fifth, asphalt CB, hot oil OH2 or tar TM or TH, is then applied at a rate of 0.3 to 0.4-gallon per square yard. The heavier asphalt or tar is permitted for this application and, if used, will speed up the operation, as the heavier bituminous material cures quicker than the lighter. The ultimate results, however, are about the same whether the heavier or the lighter bitumens are used. The lighter grades of course require a little more time to cure. When the bituminous material is in the tacky stage, the surface is again thoroughly rolled. It is important that plenty of rolling be done, as it is practically impossible to roll too much at this time.

Sixth, just after applying the third cost of bituminous material, a cover of stone from 1-inch to ⅝-inch should be applied in sufficient quantity to fill all the voids in the coarse stone, and should be broomed into the voids. Approximately 25 pounds of stone per square yard of surface is used. Asphalt CB or tar TM is then applied to the surface at the rate of about 0.25 to 0.3-gallon per square yard. The surface is again thoroughly rolled, and the road then can be opened to traffic.

Just before winter weather this road should be given a surface treatment of asphalt CB or tar TM and sufficient covering material, sizes 1-inch to ⅝-inch applied. The approximate quantity of asphalt used is 0.2-gallon per square yard, and the covering material from 40 to 80 pounds per square yard.

If this retread is built late in the fall, it may be necessary to put on the surface treatment or fourth coat of bituminous material shortly after the third coat, and, if this is the case, perhaps a little less bituminous material and covering will be necessary. The surface should be dragged to aid in securing a smooth riding surface.

Important Considerations

The important things to observe in order to secure good results with retread are:

1. Be sure the old base has sufficient strength to carry the load put upon it.

2. Do not use too much bitumen. A too lean retread is better than one too rich in bitumen.
3. Adequate rolling is necessary.
4. Be careful throughout the work.
5. This initial investment in retread must be constantly protected by the proper maintenance.

Costs

The method described above costs about $7,000 per mile for pavement only and is one of the higher types of retread. Good results have been secured with lighter courses; however, the thickness of the course should be determined by the strength of the base and the amount of traffic that will go over it. Lighter types can be built at less cost.

—From a paper presented at the Sixteenth Annual Purdue Road School, Purdue University, Lafayette, Ind.

Disease May Lurk in New Mains

The Thorough Sterilization of Newly Laid Mains as Well as Repaired Mains Is Essential for the Protection of Consumers

By LEE D. ST. JOHN
CHIEF ENGINEER,
WATER DEPARTMENT,
JACKSONVILLE, FLA.

THE sterilization of water-mains is an urgent duty of the water-works department which has been neglected to a large extent. Most water-works officials are diligent in seeing that the water-supply is properly sterilized at the plant and sent out to the consumers in a safe condition, and it is equally important to insure the safety of the water through the entire system, right up to the consumer's faucet.

Not alone is the sterilization of new mains an important matter to take care of, but every break in a water-main is a potential source of danger, as it may contaminate the system beyond the point of the break. There are times when the repairs to breaks in the mains, if they happen to be in a highly contaminated ground, or if a sudden rain happens to fill up the excavations, or if adjacent sewers are leaky, may result in a very serious contamination of the water-supply.

The Solution

The logical solution of these problems at the present time is sterilization of the mains with chlorine. In Jacksonville we recently acquired a Wallace & Tiernan portable chlorinating outfit which has proved very satisfactory. Prior to this time and for the last few years, we have used one of the MSV type chlorinators which is a part of the station equipment, but this type of apparatus is rather difficult to transport, as it is not made primarily for that purpose.

Using the portable chlorinator, the sterilization of new mains or of sections where repairs have been made is accomplished with little trouble and at small cost. We recently chlorinated two well lines that were put down under the bed of an old creek which has been contaminated with sewage over a period of years. This, of course, presented a bad condition, but, after flushing the section thoroughly for a few hours and chlorinating for two hours, letting the chlorinated water stand in the line for two or three hours more, and then flushing out the chlorinated water, the samples of water taken for bacterial examination showed the line to be properly sterilized.

Procedure for Sterilizing Mains

The usual procedure in chlorinating parts of the system is to shut off the section to be treated from the rest of the system by closing the necessary valves, filling the pipe completely, and flushing out any sand or mud thoroughly, so that the chlorine will be sure to reach all surfaces of the pipe line treated. The chlorine application is made through a 1-inch corporation cock in the line, usually just inside of the closed valve. It is necessary to have an outlet beyond the section to be treated, so that chlorinated water will pass through the section and out. If a hydrant is not available, a large tap must be made.

After the section is thoroughly flushed, the chlorine is turned on. The amount of chlorine to be used depends upon the amount and nature of the water and the flow. Fifteen minutes after the water flowing out shows the proper amount of residual chlorine as determined by the ortho-tolodine test, the chlorine may be shut off and the flow of water stopped. This chlorinated water should be permitted to stand in the mains for one hour or more. Then the chlorinated water should be flushed out thoroughly until no excess residual chlorine is detected in the water by the ortho-tolodine test.

If the section to be treated supplies any services, these should be shut off at the curb cock to keep the strongly chlorinated water from entering the service, which, of course, would be undesirable.

To check the results obtained, samples for bacterial examination should be taken. If they show as good sterilization as the mains just back of the chlorinated section, then the main is thoroughly sterilized and is ready to be put into service, with the assurance that everything possible has been done to supply a safe water.

—From a paper read at the fourth annual meeting of the Florida Section of the American Water Works Association.

100 Per Cent Protection

This is not a plea for a 100 per cent protective tariff, but an urgent appeal to water-works officials to read this article carefully and act upon it whenever a new line is added to the distribution system or when a section of broken main is replaced. As the author states, many cities start a 100 per cent safe water from their filtration plants but fail to give it the proper protection all the way through the distribution system by being sure that recent breaks or new mains have been made bacterially clean.

Buffalo's Famous Elms Endangered

By FRANK E. KARPICK

BUREAU OF FORESTRY (A. KRAMER, FORESTER), DEPARTMENT OF PARKS, BUFFALO, N. Y.

ELMS ON A BUFFALO PARKWAY
The buds are just opening

THE arching elms for which Buffalo has long been famous suffered a terrible experience on December 17 and 18, 1929, from which it will take them a long time to recover. On those days a sleet storm, the worst in local history, visited the city. The ice accumulation on the trees was so heavy that its weight broke branches up to 16 and 18 inches in diameter. While all the trees bore the brunt of the storm, the elms suffered most.

The City Forestry Department has been working since that time to repair the damage and has had to resort to a method of treatment which, while not entirely orthodox, still, as an emergency measure, may be permitted. The usual procedure of removing an unsightly tree could not be followed, because it would have been a catastrophe to remove all the badly injured trees. Therefore, the method being carried out is to remove all broken branches or "hangers," and if the remaining section of the branch is in good condition, it is left intact. While in certain instances the effect will be to make the trees look rather abrupt and unattractive to the eye, this method will allow many of them to remain. In time, they will have recovered from their injuries sufficiently to fill in, and the "stubs" may then be removed.

SYCAMORE OR PLANE TREES
These were pruned and headed in the spring, and are shown just bursting into leaf

A great number of the injured trees were removed, and in order to fill in their places, other trees were planted. These range in size from ½ to 2½ inches in diameter. The American elm is used exclusively. It has been the experience of the Forestry Department that elms are best suited for municipal planting in Buffalo. Sycamore, silver maple, pin oak, linden, ash, and even gingko, have been experimented with, but for various reasons have not been found as desirable as the American elm.

Buffalo experienced a rather early spring this year, and planting was started in early April. Four gangs were employed planting an average of 75 trees per day, so that our city in its 1930 spring planting program has added well over 3,000 to its more than 300,000 luxuriant and healthy shade trees for the enjoyment of posterity.

A STREET OF NORWAY MAPLES

The Hospital of the Future

"HAS the time come for us to think of the hospital in terms of the community instead of the individual institution?" asked Lee K. Frankel, Second Vice-President of the Metropolitan Life Insurance Co., in a recent address before the annual meeting of the Hospital for Joint Diseases in New York.

In Dr. Frankel's opinion the hospital of the future will be more than a curative institution; it will also be a teaching institution. Possibly the day may come, he suggested, when we shall deliberately limit its scope geographically, so that each institution can do finer and better work in intensive health education.

"Any consideration of the hospital of the future will necessarily involve the fundamental problem of cost," the speaker continued: "An average stay in a hospital in New York State has been found to be about twelve days at an average cost of $5.50 per day. When you think of what a hospital furnishes, an average cost of $5.50 is not tremendous. Yet the cost will continue to grow because certain items are not included in present-day costs, and the primary one is the service of the physician. In practically none of the hospitals is the physician paid. The average physician today does not make an adequate living. Has the time come for us to think of the hospital as a professional institution in which all individuals giving service—including the physician—shall be paid? Can such a hospital be self-supporting?

"We provide against such hazards of life as fire, death and accident under the modern method of distributing the burden of the risk. Fundamentally, this is the insurance principle. Knowing this, have we not found the way out? The cost of sickness must be provided for in advance of sickness, and be distributed so that it bears equally on all. When we can incorporate this insurance principle into hospital practice, when we can get all people to pay an equal share of the hospital costs, then we shall have the hospital of the future, a self-supporting, professional institution under competent medical direction, giving similar service to all patients, without discrimination."

Subjecting Our Cities to Fa-Mik-La

By EDWARD T. HARTMAN

FA-MIK-LA, the third degree of the Dogrib Indians, when they want to secure information from someone, is described by Ridgewell Cullum in his novel "Child of the North." The victim's scalp or face is seared, a little here and a little there, with hot irons, a finger-joint is cut off, a toe-joint is cut off, a part of an ear is cut off, followed by other mutilation.

A great deal of our zoning in its initial stage resembles a man born without parts of some of his organs, and after our boards of appeal, city governments, or town meetings, at the behest of privilege-seekers, get through with what is left, our cities and town resemble an unfortunate victim who has been subjected to fa-mik-la. It is a process that will end only when the people wake up and recognize the importance of what is being done.

Is Your City on Guard Against Such Practices as These?

Lawyers of a certain type, whom one of our prominent writers classes as jackals, agree to secure certain permits for certain intrusions for a certain sum. They apply to the building inspector, and he generally refuses the permit. They then apply to the board of appeals. It sometimes grants the permit and sometimes refuses. If it refuses, they apply to the city government for a zone change. In certain instances the city government grants the change "subject to the zoning law." This is only another way of saying that if the applicant can get by the board of appeals, the city government will not stand in the way. (This of course applies to a case such as a garage where a special permit has to be secured from the city government. Where a direct zone change is sought, it is very frequently granted.)

If all previous applications have been denied, a new application is entered in anywhere from one to six months. In the meantime a lot of new and offensive proposals are made; laundries, soap factories, boiler-works are discussed. People who would be offensive in the particular community are taken to look over the property. It is noised about that they are considering the purchase of the property. The people in the neighborhood weaken. The second, or third, or fourth, or fifth application to the board of appeals meets with favorable results, although no new evidence has been introduced.

Too Much Space for Industry and Business

There is hardly a city or town that is not over-zoned for industry and business. In spite of this, privilege-seekers offer a considerable price for residential property with the understanding that the purchase will be consummated if the present owner secures a zone change. Too often the board of appeals or the city government, sooner or later, grants the change.

City planning and zoning are designed to lay down a scheme of growth for a city. As pointed out, the first laying-down of the zone scheme almost universally results in too much space for industry and business. If the city had a sound sense of direction, it would aim to gradually restrict particularly the business areas and to establish new areas only in outlying or newly developing districts. Instead of adhering to a scheme of growth our cities are being subjected to fa-mik-la. Many of them somewhat resemble the poor victim when the zoning is first done. The longer they operate, the more they resemble him. When our boards of appeal and city governments have had their way for a sufficient period, our cities will entirely resemble him.

Contrasted with this, there are a few places where the official bodies and the people have assumed an active and constructive attitude towards their cities, and they are already reaping abundant rewards. People seeking new homes are going extensively to these places because they have discovered that the city or town has a scheme of growth and that anyone building in a residential area will have the protection afforded by the laws, backed by conscientious administration of the laws by the officials and the people.

People who have built under the law and with the assumption that they would have its protection are constantly amazed when this protection is denied them by official bodies. They can't understand why, after they have obeyed the law, others should not obey it. They can't understand officials who seem willing to cooperate with certain people who insist upon "getting by" the law. But, as two of our state supreme courts have pointed out, the officers in the last analysis are selected by the people.

Sound Preparation for Recreation Programming

"A STUDY of the Recreation Facilities of Bangor, Maine, with Suggestions for Their Development and Administration" is the title of a recently issued pamphlet by Willis Allen Parker, Ph.D., of the Playground and Recreation Association of America. The study, locally published, was made at the invitation of the Recreation Committee of the Bangor City Council and the Bangor Chamber of Commerce. It represents a combined impulse of citizens and public officials to take advantage of the soundest expert advice available in their approach to the problem of broadening the community recreation facilities.

Mr. Parker, after familiarizing himself with the history of playground development in Bangor, made a personal investigation of the city's actual and potential resources in this field, and outlined a comprehensive program based upon these factors and upon successful experiences of cities similar in size and character in different parts of the country.

Bangor and its suburbs have a population of approximately 35,000. Conditions there are fairly typical; hence the general recommendations are of broader than local interest. These include the following suggestion:

That the press, the civic and literary clubs, the clergymen and churches, and other public education agencies, undertake a definite campaign to diffuse information about the growth of the recreation movement in general, and the operation of definite enterprises in other cities.

That in order to give point and direction to local volunteer effort, a few commonly accepted principles be adopted by the community, including: tax support; trained, full-time leadership; a recreation board or commission composed of five members selected for their wisdom and interest in welfare in general and recreation in particular; an advisory recreation commission of 50 or more persons chosen annually by the city and representing every neighborhood, civic club, social and racial group, and age of persons to be represented; a future development program. The development program for Bangor includes the building of a municipal golf course on city-owned or -controlled property, where it can be made not only self-supporting, but revenue-producing; development of tennis courts in blocks, a method sufficiently economical to enable construction and upkeep costs to be met by reservation fees if desired. City-wide year-round programs of seasonal activities include swimming, snow and ice sports, and field sports, for which definite space and leadership provisions are suggested.

Specific recommendations are of interest as indicating the extent to which existing —often uninventoried, unsuspected—resources may be utilized.

The Economic Value of Laying Out Roadways for "Steadyflow" Traffic

"Street Crossing without Intersection of Traffic and without Grade Separation," Compared with Synchronous Stop-and-Go Traffic Control*

By FRITZ MALCHER

THE recently published "Regional Survey of New York and Its Environs" contains in Volume III, page 86, a plate showing "single lane capacities under the most favorable conditions which might be expected to obtain within the next thirty or forty years." This chart (Plate 1) has been used as the basis of the following examination.†

As interpreted in Plate 2, which the writer has prepared from the chart, it appears that the maximum density of 1,880 vehicles per lane per hour is obtained with uninterrupted traffic flowing at a velocity of 15 miles per hour. An average density of 1,800 vehicles—to be considered practically as the maximum capacity—will be attained at ve-

* As a concise term to describe the system of traffic facilitation discussed in this paper and in previous articles in THE AMERICAN CITY (September, 1929, page 89; October, 1929, page 101; November, 1929, page 142; January, 1930, page 158; March, 1930, page 88; and April, 1930, page 101) the name of "steadyflow" has been adopted, and will be used hereafter instead of the more cumbersome phrase "street crossing without intersection of traffic and without grade separation."

† "The Limit Based on Minimum Individual Spacing" shown in Plate 1 represents ideal conditions not obtainable with existing cars, road surfaces and drivers. The Regional Survey report explains that "Uninterrupted Traffic" would mean a roadway free from grade crossings unless at intervals of two or more miles. It is this curve of Uninterrupted Traffic on which the figures in the upper part of Plate 2 are based.

The study by the Regional Survey of New York and Its Environs was made before the traffic towers had been removed from Fifth Avenue, and the term "tower traffic regulation" was therefore used in the diagram reproduced as Plate 1. Since, however, the same system of control—stop-and-go traffic lights in synchronous circuits, but with signals at the curb instead of in towers—is that still used most commonly in New York and other cities, the term "stop-and-go" regulation will be used in this paper instead of the now generally obsolete term, "tower traffic regulation."

A Careful Study of a Difficult Problem

Since two automobiles, whether moving or still, cannot occupy the same space at the same time, it is obvious that the traffic capacity of an ordinary intersection of two traffic lanes cannot exceed one-half the capacities of both intersecting lanes. As usually regulated by synchronous signals, traffic flow falls far short of reaching this 50 per cent maximum at safe attainable speeds. A much nearer approach to adequate roadway utilization, with a minimum of delay and annoyance to motorists, is attained in well-designed progressive systems of traffic signals or in vehicle-actuated control. There must continue to be, however, many roadway intersections, especially in small cities or new developments, and on state or county highways, where control by these last-mentioned methods or by traffic officers is too expensive to be immediately practicable.

It is to help solve this problem that a careful study has been made of the economic value of "steadyflow" traffic in comparison with synchronous stop-and-go control. The work has been done by Mr. Malcher in preparation for a paper which he is to present at the Richmond convention of the American Society for Municipal Improvements in October. Through the courtesy of the officers of that organization, THE AMERICAN CITY has the privilege of publishing most of the plates prepared by Mr. Malcher for this convention paper and an abstract of the document itself. The full paper, which gives the author's computations in much greater detail, will be published in advance of the Richmond meeting and will be available in pamphlet form on application to the author, at Room 701, 56 West 45th Street, New York.

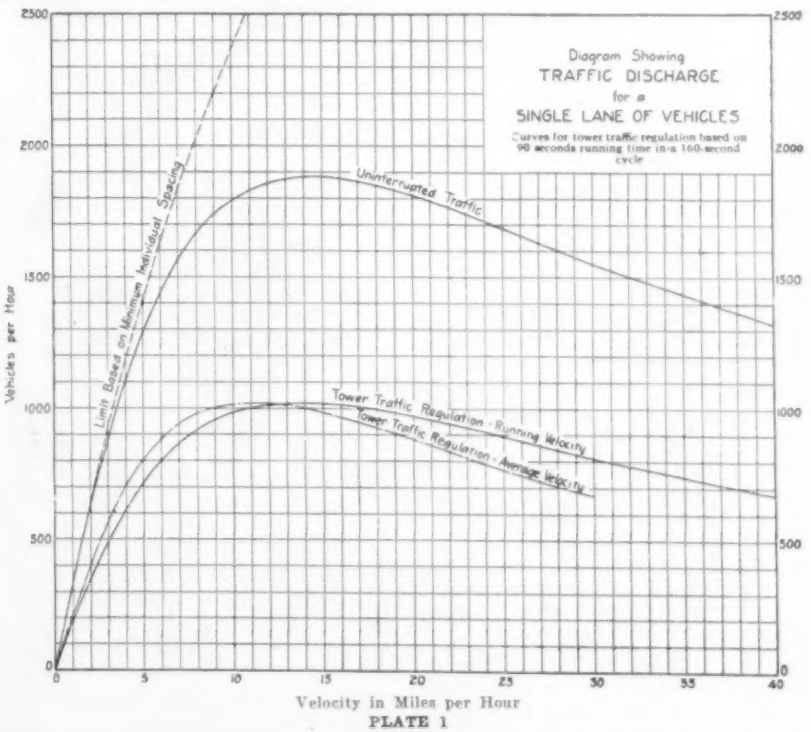


PLATE 1

MILES PER HOUR	5	9	10	11	12	14	15	20	25
UNINTERRUPTED TRAFFIC					1.800				
VEHICLES PER LANE PER HOUR	1.290		1.790				1.880	1.810	1.690
SPACING	20'		29'				42'	58'	78'
"STOP-AND-GO" TRAFFIC AVERAGE VELOCITY									
VEHICLES PER LANE PER HOUR				1.000					
MAIN TRAFFIC	800	1.000	1.015	1.020	1.020	1.000	980		
				417					
CROSS TRAFFIC	333	417	423	425	425	417	408		
				708					
AVERAGE	567	708	719	723	722	708	694		

PLATE 2

locities ranging from 10 to 20 miles per hour.

As shown in the curve "Tower Traffic Regulation—Average Velocity" in Plate 1 and in the figures in the lower part of Plate 2, stop-and-go traffic regulation limits the maximum density to 1,020 vehicles moving at a speed of between 11 and 12 miles; a practical maximum capacity of 1,000 vehicles being attained at an average velocity of 11½ miles per hour. This, however, applies to the main traffic street only. The data published in the above-mentioned volume, page 88, show that on Fifth Avenue, Manhattan, at the time the study was made in 1927, the traffic movement was as follows:

120 seconds—green light; motion on avenue
50 seconds—red light; motion on cross streets
10 seconds—two five-second intervals of no lights; notices of change

This proportion results in limiting the per lane traffic capacity for the cross streets to about (1,000 × 50 ÷ 120 =) 416⅔ vehicles per hour. Consequently, the maximum practicable volume of all traffic at such an intersection averages 708⅓ vehicles per lane per hour, proceeding at an average velocity of 11.5 miles per hour.

Traffic Capacity of "Steadyflow" Intersections

The maximum capacity of one *uninterrupted* traffic lane, as already shown, is practically 1,800 vehicles per hour. At an hourly velocity of 10 miles, a spacing of 29 feet between front fenders has to be observed. A speed of 20 miles per hour requires a spacing of 58 feet. Now, let us assume a file of vehicles proceeding along one of the oblique crossing lanes provided by the "steadyflow" system, at a speed of 20 miles per hour. Each of these 58-foot intervals will admit any vehicle turning from the cross street into the main traffic lane, with the consequence, of course, that the spacing will be reduced to 29 feet and the speed of the following vehicles to 10 miles. The average density of traffic, however, will be practically the same, i.e., 1,800 vehicles per hour. The subsequent turning-off of every other vehicle would naturally restore the original 58-foot spacing, and the speed of 20 miles could be resumed.

Accordingly, the hourly traffic capacity of each oblique crossing amounts to practically 1,800 vehicles. But since each oblique crossing lane must carry, on an average, the traffic of two intersecting traffic lanes, a "steadyflow" intersection will accommodate only 50 per cent of the combined traffic capacities of the entering lanes. This limits the average capacity of each lane into the oblique crossing area to 900 vehicles, which compares very favorably, however, with the average traffic capacity of only 708⅓ vehicles per hour under the stop-and-go system.

PLATE 3

Plate 3 (Fig. I) shows an ordinary intersection of two roadways, each carrying two moving lanes, but with a traffic island of 40 feet diameter. One lane being provided in each direction for uninterrupted traffic on the intersecting streets, we find that four times 900 vehicles, maintaining the above-mentioned spacing, will be able to proceed through the intersection at a velocity of 10 miles per hour.

In this as in the following illustrations, the lines connecting the vehicles indicate the presumed tracks of the uninterrupted traffic lane. Parking places or stop lanes are shown as hatched; greenage as dotted spaces.

Figs. II, III and IV, Plate 3, show the same intersection on a smaller scale and the movement of traffic in subsequent phases, each phase corresponding to one-twelfth of the circumference. Fig. V shows the same phase as Fig. IV, under the assumption that every other vehicle turns off the original direction of traffic to the right.

In the cases just mentioned the width of the crossing areas around the traffic island is equal to two lanes. With theoretically ideal spacing and timing of vehicles, the width of one lane would be sufficient to assure the uninterrupted flow of one-lane traffic along the crossing line. This would be the case, for instance, at the intersection of streets with 20-foot roadways, the intervals being sufficient to allow the vehicles to drop into line successively along the single lane of the crossing line. But technical reasons will always be strongly in favor of at least two lanes within the intersection, considering the contingency that vehicles arriving on two or three different roadways might continue all in the same direction. Provision must be made, too, for vehicles leaving the stop lanes and proceeding along the crossing area.

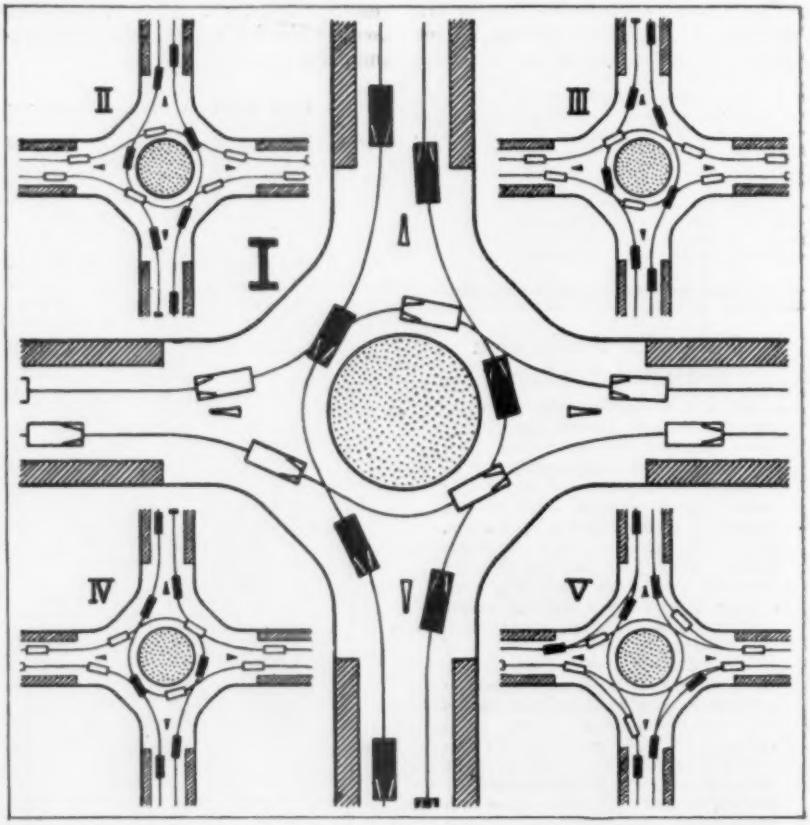


PLATE 3

PLATE 4

Plate 4 shows other typical intersections of four-lane roadways, each with two lanes for the flowing traffic. Figs. I and II depict streets, with non-separated roadways, Figs. III and IV streets with 40-foot middle strips. In Figs. I, II and IV the crossing areas are 40 feet long (twice the width of two lanes).

Now, we can affirm conclusively that each of the 900 vehicles approaching on one of the traffic lanes and maintaining the necessary spacing of 29 and 58 feet, respectively, will be able to cross along the oblique crossing area at a velocity of 10 miles per hour.

It is evident, further, that the layout of traffic islands as shown in Figs. I, II

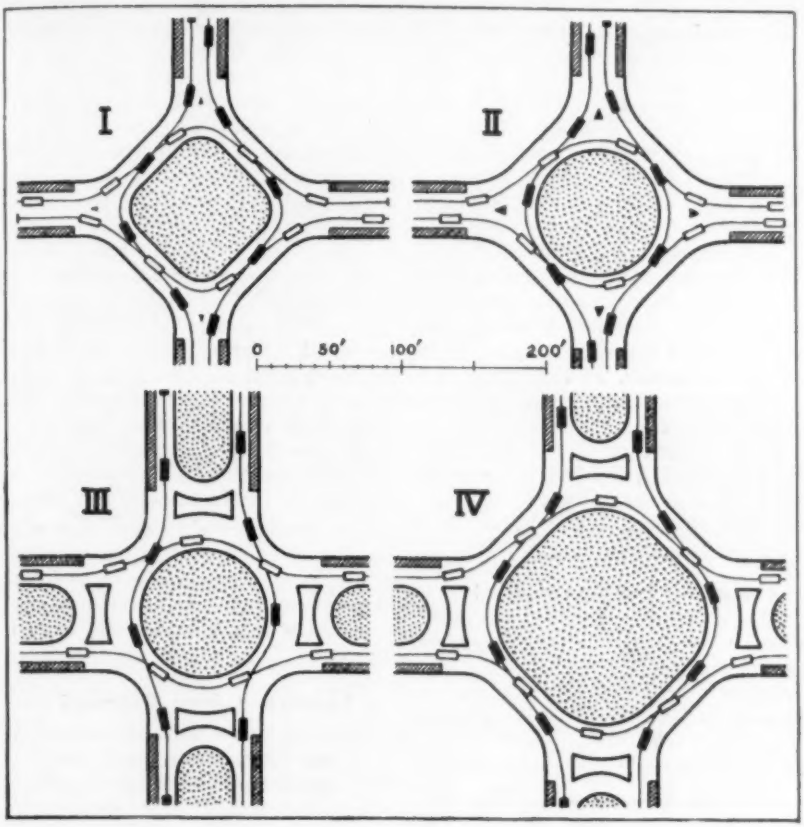


PLATE 4

and IV is better adapted to serve the purpose of reducing the speed of appoaching vehicles from 20 to 10 miles per hour, than the layout according to Fig. III. Besides, the length of the 40-foot crossing line will facilitate the turns-in and -off of vehicles. The construction of sections of roadways between traffic island and middle strip as shown in Figs. III and IV will make it easy for the driver to drop into line on time. This advantage compensates for the missing special crossing line, as shown in Fig. III, and favors decidedly the uninterrupted traffic (Fig. IV).

PLATE 5

Plate 5 shows typical intersections, according to the "steadyflow" system, where the main traffic is being favored. This applies especially to Figs. II to IV. The plates show the indirect crossing of various numbers of uninterrupted traffic lanes: in Figs. I, II and III we see the intersection of one secondary traffic lane and two or three, respectively, main traffic lanes. Fig. IV shows the intersection of two secondary and two main traffic lanes. According to the rules of the system, the number of lanes within the oblique crossing area should equal the number of lanes joining within that section; consequently, Figs. I and II show three, Figs. III and IV four traffic lanes, the length of the oblique crossing areas equalling, in Figs. I and II three times, in Figs. III and IV four times the width of the roadway.

Again we see that vehicles interchanging lanes can maintain the highest density of traffic by observing the necessary intervals of 29 and 58 feet.

Variation of Speed at Intersections

Another important conclusion can be drawn from the study of the several phases of traffic. We find that the necessity of reducing their speed to a minimum of 10 miles per hour applies to those vehicles only which are just about to cross the indirect intersection. Before and beyond that point there is enough space provided within the entire oblique crossing area to take care of all vehicles approaching or leaving that section at a speed of 20 miles per hour. On about one-third of the length of lanes within the crossroads, where the actual crossing is taking place, a speed of 10 miles per hour will have to be maintained. On the other two-thirds vehicles will be able to proceed at an average speed of 15 miles per hour. On road intersections controlled by stop-and-go lights the vehicular velocity, at maximum traffic density in all four directions, averages 11.5 miles per hour, whereas this system provides for 13⅓ miles on the average. Where a specific kind of traffic is favored, as shown on Plate 5, this increase of speed will give the main traffic an advantage over sec-

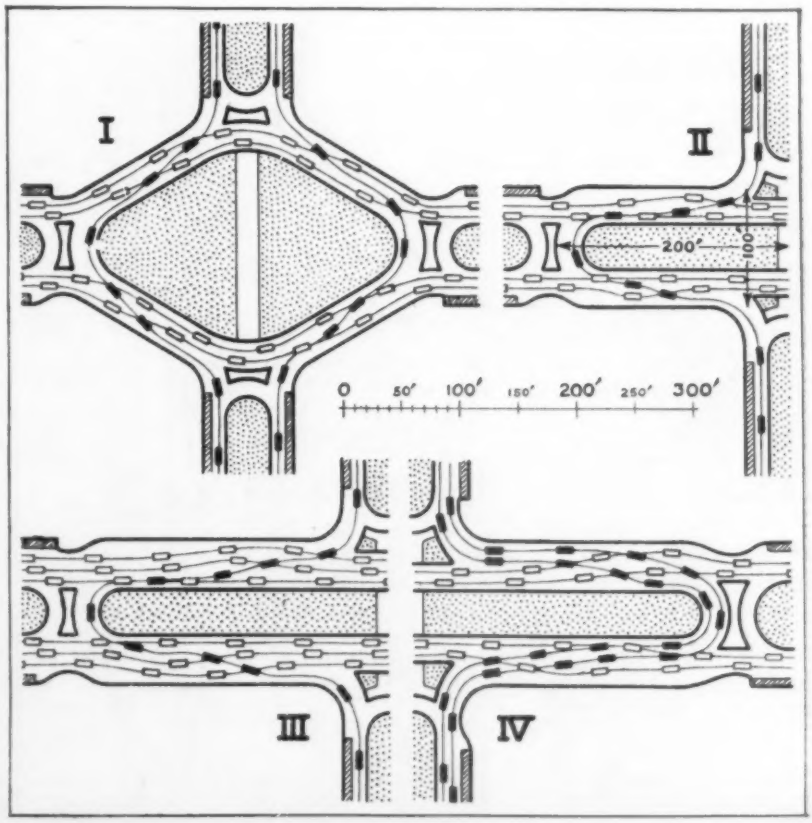


PLATE 5

ondary traffic.

These examples show that an increase of the length of the oblique crossing area will naturally result in a further increase of the average velocity. This would be especially desirable on arterial highways, parkways and so forth.

PLATE 6

Developments of this kind are depicted in Plate 6. Fig. I shows the intersection of two arteries of the same class. Similar to the example given on Plate 5, Fig. IV, the crossing area is 160 feet long and a spacing of 29 feet at the intersections is required, which means a reduction of the velocity to 10 miles per hour. Fig. II shows an intersection of two traffic arteries. Here the first-class road is given advantage over the second-class road. The oblique crossing area is 240 feet long and the vehicles have to maintain intervals of 42 feet and a velocity of 15 miles per hour. Fig. III depicts an intersection where the more important artery is being favored. The oblique crossing area shows a length of 320 feet. A spacing of 58 feet and a velocity of 20 miles per hour have to be maintained, accordingly. These figures are based on the requirements of traffic of the highest possible density. Naturally, traffic on the second-class road will be subordinated. In other words, vehicles approaching on secondary roads, laid out appropriately, will have to conform to the main traffic and adjust their turns-in and -off accordingly. They will have to regulate their speed so as to take advantage of the intervals between the vehicles on the main traffic artery, in order to effectuate the crossing.

In all examples as shown in Plates 3 to 6, the position of each vehicle is given at random. An examination of the secondary traffic, however, shows that this class of traffic is always being regulated by the main traffic. In Plate 6, Fig. I, a spacing of 58 feet, before and beyond the points of intersection, is assumed; in Fig. II the corresponding figures are 85 feet; in Fig. III, 116 feet. The corresponding velocities in these three examples are 20, about 26.5 and about 32.5 miles per hour, respectively.

Roadway Lengths Compared

The question may now be asked whether the economic advantages of greater lane capacity and higher traffic velocities may not be offset by the increased distances which vehicles must travel with the "steadyflow" system. Computations show that the system requires roadway lengths at intersections about 20 per cent greater than ordinary requirements. This is the average for the various intersections shown in the accompanying Plate 7. Careful studies by the writer, which will be set forth in detail in the A.S.M.I. paper, indicate that, with full allowance for these additional roadway lengths, the continuous movement of the "steadyflow" traffic will allow 900 vehicles to travel about 21 miles in an hour on a single lane, as compared with 708⅓ vehicles traveling 11.5 miles in an hour over a traffic lane controlled by synchronous stop-and-go lights—it being assumed in both cases that the cross streets are similarly carrying their maximum traffic capacity. This means 232 per cent vehicle mileage for the "steadyflow" as compared with 100 per cent for the stop-and-go system.

Accordingly, we shall need only one lane for the uninterrupted traffic instead of two, or two instead of four, and yet accommodate a volume of traffic 16 per cent greater than with the stop-and-go system.

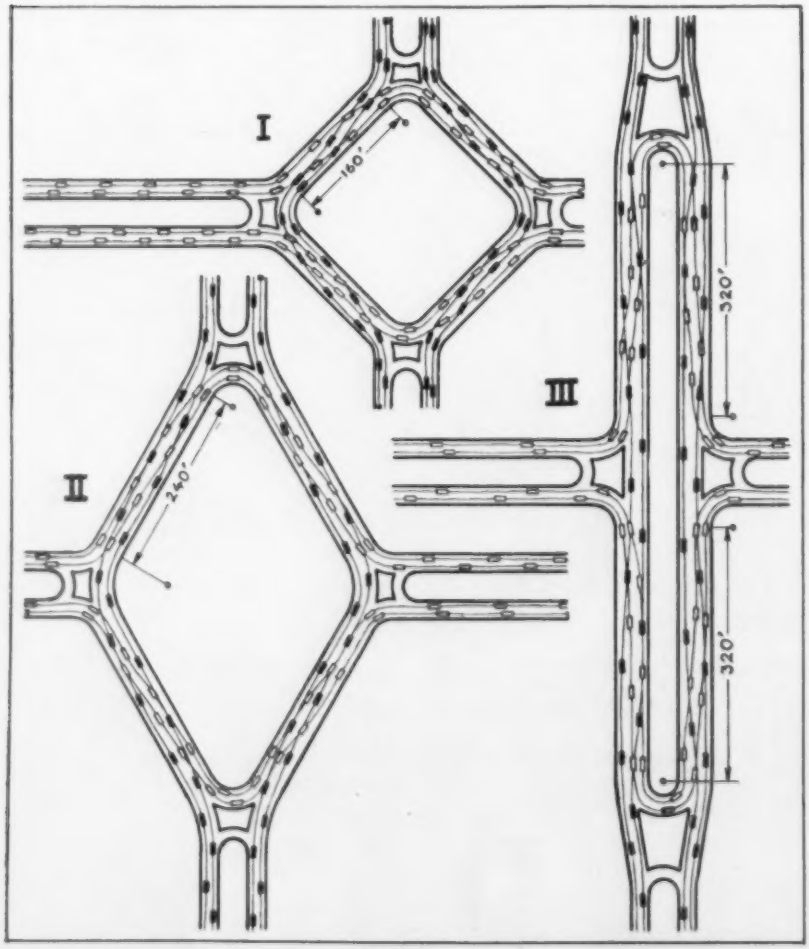


PLATE 6

Intersection Areas Compared

Plate 7 shows a comparison, computed in square feet and percentage, between usual intersections and the most typical crossroads suggested in the "steadyflow" system. The designations in parenthesis refer to types shown in other plates. The roadways on corresponding usual intersections, excluding parking spaces, are shown as spaces with horizontal lines; roadways in accordance with the proposed system are depicted as spaces with vertical lines. TI is the superficial area of the traffic island, DL the drive length provided by the "steadyflow" system and compared with the stop-and-go system. Fig. H (corresponding to Plate 5, IV) shows a construction with a roadway area of 130 per cent and a drive length of 155 per cent. Although correct from the viewpoint of the "steadyflow" system, this construction is uneconomical and therefore not included in the comparison. We can easily do without it, as the construction illustrated in Fig. I of Plate 5 is very much more advantageous for such intersections of traffic arteries of the same class.

In Plate 7, Figs. A to I (H excluded), show that the "steadyflow" system requires roadways of 103.5 per cent to 115.5 per cent, as compared with the stop-and-go system. As an average, 110 per cent will certainly be sufficient.

The entire areas, consisting of roadway plus traffic island, require, according to Fig. A, 130 per cent; Fig. B, 171 per cent; Fig. C, 174 per cent; Fig D, 233 per cent; Fig. E, 298 per cent; Fig. F, 170 per cent; Fig. G, 147 per cent; and Fig. I, 261 per cent, respectively. The average is therefore about 200 per cent, as compared with 100 per cent un-

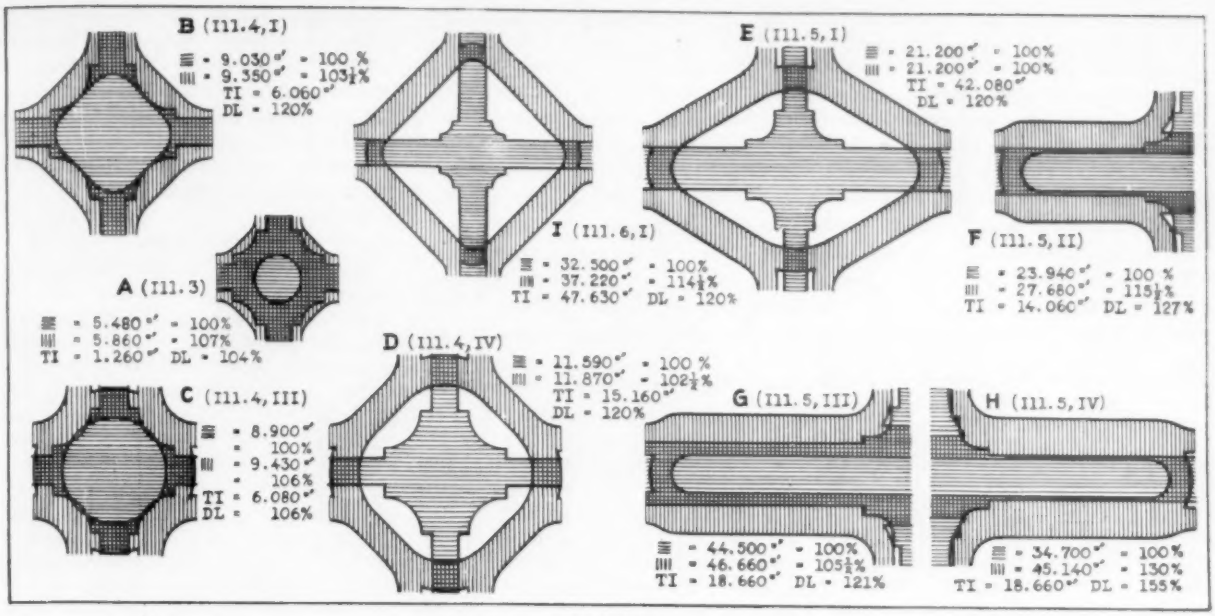


PLATE 7

der the stop-and-go system. Most modern regional plans provide right from the beginning ample space between the property lines to permit the laying-out of 40-foot middle strips without the necessity of widening the road area. Merely the width of the bordering greenage strips will have to be reduced. Therefore, for two-thirds of the drive length it will not be found necessary to widen the road area. Only the remaining one-third, comprising the intersections, requires more space for greenage. An area of 150 per cent for the construction of intersecting roadways separated by middle strips, does not seem excessive, as compared with 100 per cent required for similar roadways with the stop-and-go system.

Comparing the areas required by the two systems under equal conditions, we find that more land will be needed, in accordance with the "steadyflow" system, for the construction of one-third of the drive length only. The total for the intersection areas amounts to 110 per cent for roadways and 150 per cent for greenage, together 160 per cent, as compared with 100 per cent for similarly separated roadways under the stop-and-go system. For the remaining two-thirds of the drive length the required area will be the same. Assuming land values of $1 per square foot, roadway construction costs of 50c per square foot, and greenage costs of 10c per square foot, the writer's computations, which are set forth in detail in his A.S.M.I. paper, show roadway costs amounting to 114.6 per cent for the "steadyflow" system as compared with 100 per cent for the stop-and-go system. This reduces the 232 per cent economic advantage previously mentioned, to about 200 per cent, as compared with 100 per cent effectiveness of highways designed for the stop-and-go system. If, under the conditions discussed in the next paragraph, pedestrian traffic must be considered also, the economic value of the "steadyflow" system will be reduced to about 160 per cent. On the other hand, if the complete separation of vehicular and pedestrian traffic, such as is planned for Radburn and other new developments, proves to be practicable, higher speeds can be attained with the "steadyflow" system, and the 232 per cent economic advantage would be increased to at least 250 per cent.

Giving the Pedestrian a Break

So far, we have been considering vehicular traffic only. Because of the safety islands which are a feature of intersections in the "steadyflow" system, and because of the absence of left turns, there is greater safety for pedestrians at such intersections than at ordinary intersections not protected by traffic lights. It is obvious, however, that when "steadyflow" intersections, with more than one moving lane in each direction, are carrying substantially their maximum vehicular traffic, pedestrians need some special consideration. This can be provided by the installation at such intersections of red traffic lights during the display of which all vehicular traffic will stop and which will give pedestrians unrestricted right-of-way on all roadways and in all directions. During these red light intervals, pedestrians will be allowed to cross the roadways at any place. This, in turn, will relieve pedestrian congestion at intersections and, on most highways, the needs of the pedestrians could be met by a red-light interval of 20 or 30 seconds out of each 2 minutes. A 30-second interval would reduce the traffic capacity of the "steadyflow" system below the 232 per cent previously estimated, but although the capacity would be reduced to about 180 per cent, this would still show marked superiority over the 100 per cent of the stop-and-go system. This examination serves to emphasize further the economic importance of separating the pedestrian traffic entirely from vehicular traffic.

Better Driving Needed

Regarding the objection that the "steadyflow" system would require better-trained drivers, it has to be admitted that this is partially true, inasmuch as the introduction of the stop-and-go system has caused the loss of certain qualities and abilities essential for a first-class driver. Today the motorist's attention is concentrated on the traffic lights to such an extent that he can scarcely be expected to adapt himself instantaneously to the ever-varying contingencies of the surrounding vehicular and pedestrian traffic. Traffic regulation by the stop-and-go method is really a measure of restriction directed *against* vehicular and pedestrian traffic, whereas the "steadyflow" system tends to *protect* traffic. Certainly, the drivers will have to learn, but this will be to their advantage.

What Can We Do in Existing Congested Cities?

The foregoing discussion has been concerned with the possibilities of the "steadyflow" system in new communities and in state and county highways outside of congested centers. In most existing cities we must keep in mind, of course, that it is out of the question to consider widening many of the existing streets and intersections. Besides, we shall find only a very small number of arteries wide enough to allow the con-

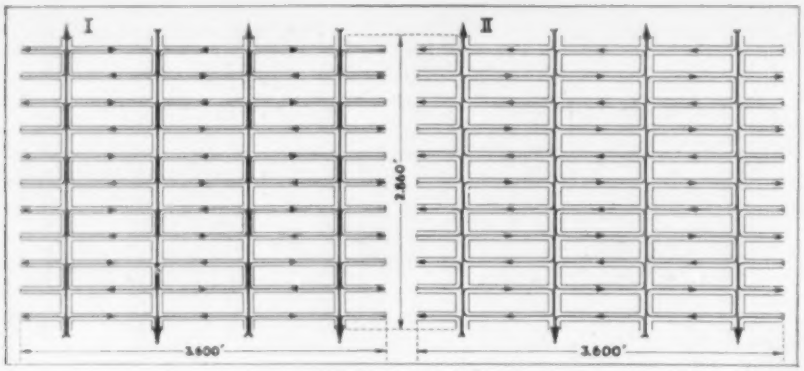


PLATE 8

struction of separate middle strips. But it will always be possible to change the direction of traffic and to designate certain streets in accordance with the principles of the "steadyflow" system as one-way streets. This is shown in Plate 8, based on the customary gridiron street system of American cities. Fig. I of that plate shows a narrow-street town and Fig. II a wider-street city. The number of traffic lanes is not indicated in this diagram, because the number depends naturally on local conditions. Indirect crossings—oblique crossing areas—are indicated in accordance with the "steadyflow" system. Two lanes are the minimum number which could handle the traffic on the main street in Fig. I.

A computation of the traffic capacities and economic efficiency of handling city traffic as shown in Plate 8, will be included in the writer's studies for the A.S.M.I. convention. These figures indicate that the application of the "steadyflow" system by means of one-way streets in existing cities will increase the vehicular traffic capacity by from 50 to 100 per cent, as compared with synchronous stop-and-go control, depending on whether the pedestrian traffic is to be considered or not.

The smaller the density of traffic, the greater will be the economic value of the "steadyflow" system and the possibility of increasing the velocity; whereas, under the synchronous stop-and-go system every single vehicle is compelled to wait for the green light, even when its own lane or the cross street at the intersection is entirely free of traffic.

In Conclusion

The essentials of the proposed system can be explained in a very few, readily understandable words. **Under the synchronous stop-and-go system,** one-half of the traffic, on the average, is intermittently blocked. The street capacity of this interrupted vehicular traffic we have valued at 100 per cent. The "steadyflow" system, on ordinary street layouts, if there were no pedestrian traffic, would permit the uninterrupted flow of double that volume of vehicular traffic, or 200 per cent; the increased drive length being offset by increased density and velocity. The obstruction of the roadways by pedestrian traffic, however, reduces vehicular traffic capacity in existing cities to as low as three-quarters that just mentioned, or 150 per cent. New installations, in accordance with the "steadyflow" system, and with complete separation of pedestrian traffic, will improve traffic conditions and increase the vehicular capacity to 250 per cent.

A Summary of State Motor-Vehicle Regulations

Prepared for the American Automobile Association by the Albert Russel Erskine Bureau for Street Traffic Research, Harvard University, and published in "American Motorist," for July, with an article by Dr. Miller McClintock, Director of the Bureau

STATES	DRIVING SPEEDS in miles per hour				LICENSE REQUIREMENTS				DRIVING TECHNICALITIES								INCIDENTAL REQUIREMENTS			
	Maximum	Residence dist.	Business dist.	Curves and intersections	Driver's	For non-residents A	For non-residents B	Minimum age	No passing on hill or curves	Coasting in neutral prohibited	Unlawful to park on hill w'y	Passing street car prohibited On left	Passing street car prohibited When taking or disc. pass.	Must use hand signals	Full stop at R. R.	Must dim headlights	Spotlights permitted	Report accident Person injury	Report accident Prop'y dam'ge	Stickers permitted	Unlawful throw out cigarettes
ALABAMA	45	20	20	15	No	No	No	16	Yes	Yes	Yes	Yes	*Yes	Yes	Yes	No	Yes	No	No	Yes	No
ARIZONA	35	15	10		Yes	No	No	18	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	*Yes
ARKANSAS	35	20	15-20	15	No	No	No		Yes	Yes	*Yes	Yes	*Yes	Yes	No	Yes	Yes	Yes	Yes	No	
CALIFORNIA	40	20	15	15	Yes	No	Yes	14	Yes	Yes	Yes	Yes	*Yes	Yes	No	No	*Yes	Yes	Yes	Yes	Yes
COLORADO	35	20	15		No	No	No	18	Yes	No	Yes	Yes	*Yes	Yes	No	Yes	Yes	①No	①No	No	No
CONNECTICUT	*				Yes	No	Yes	16	Yes	No	Yes	No	Yes	Yes	No	No	*Yes	Yes	Yes²	No	No²
DELAWARE	35	25			Yes	No	No	16	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
DIST. OF COLUMBIA	30	22	22		Yes	No	*Yes	16	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	No	No
FLORIDA	*				No	No	No		Yes	No	Yes	a	a	No	Yes	Yes	Yes	①No	No	Yes	No
GEORGIA	40				No	No	No	16	Yes	No	No	Yes	*Yes	Yes	Yes	No	Yes	No	No	Yes	No
IDAHO	35	20	15	15	No	No	No		Yes	Yes	Yes	Yes	Yes	Yes	*Yes	No	Yes	Yes	Yes	No	Yes
ILLINOIS	35	20	15	12	No	No	No	15		No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	
INDIANA	*	30	20		Yes	No	No	16	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No
IOWA	*	25	15		No	No	No	15					*Yes	Yes			Yes	Yes			
KANSAS	*				No	No	No	14									Yes		Yes	No	
KENTUCKY	40	20	15		No	No	No	16			Yes	No	Yes	Yes	*Yes	No	Yes	No	No	Yes	No
LOUISIANA	45	20	20	15	No	No	No	14	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	No
MAINE	*	25	25	15	Yes	Yes	Yes	15	Yes	Yes	Yes	No	Yes	No	No	No	*Yes	Yes	Yes		No
MARYLAND	60	35	25	15	Yes	No	*Yes	16	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	No
MASSACHUSETTS	30	15	15	8	Yes	No	*Yes	16	Yes			a	a	Yes		No	*Yes	Yes	No		
MICHIGAN	*	25	15		Yes	No	No	14	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	Np
MINNESOTA	45	20	15	15	No	No	No	15	Yes	Yes	Yes	Yes	*Yes	Yes	*Yes	No	*Yes	No	No	No	
MISSISSIPPI	30	15	15	10	No	No	No		No	No	*No	b	b	No	Yes	No	Yes	No	No	Yes	No
MISSOURI	25				No	No	No	16	Yes	Yes	Yes			Yes			aYes	No	No		
MONTANA	*				No	No	No		No			No	*Yes	Yes	No	Yes		No	No		
NEBRASKA	45				Yes	No	No	16	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No		No
NEVADA	30	20-25			No	No	No	15	No	No	Yes			Yes	No	No	Yes	No	No	Yes	Yes
NEW HAMPSHIRE	35	25	20	15	Yes	No	Yes	16	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	
NEW JERSEY	40	20	20	15	Yes	No	No	17	No	No	No	Yes	Yes	Yes	No	No	*Yes	Yes	Yes	No	
NEW MEXICO	45	25	20	15	No	No	No		Yes	Yes	*Yes			Yes	*Yes	Yes	Yes	Yes	Yes³		
NEW YORK	30	20	20		Yes	No	*Yes	16	Yes	Yes	No	Yes	*Yes	Yes	No	No	Yes	Yes	No	No	No
NORTH CAROLINA	45	20	15		No	No	No	16	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	No	
NORTH DAKOTA	35	20	15-20	15	No	No	No		Yes	Yes	Yes	Yes	*Yes	Yes	*Yes	Yes	Yes	Yes	Yes³	No	
OHIO	45	35	20		No	No	No					Yes	Yes	Yes	No	Yes	Yes	No	No	No	No
OKLAHOMA	45				No	No	No								Yes		No	⑤No	*No		
OREGON	35	20	20	15	Yes	No	Yes	16	Yes	Yes	Yes	a	a	Yes	No	*Yes	Yes	Yes	Yes	No	Yes
PENNSYLVANIA	40	20	20	20	Yes	No	No	16	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes³	No	
RHODE ISLAND	35	20	20		Yes	No	*Yes	18			No	No	Yes		No	No	Yes	Yes	Yes³	Yes	
SOUTH CAROLINA	45				No	No	No	12	No	No	Yes	aYes	aYes	No	No	No	*Yes	No	No		
SOUTH DAKOTA	40	20	15	15	No	No	No	15	Yes	Yes	Yes	a	a	Yes	*Yes	No	Yes	Yes	Yes	No	Yes
TENNESSEE	*				No	No	No		Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes	
TEXAS	45	30	20		No	No	No		Yes	No	*Yes			Yes		No	Yes	No	No	Yes	No
UTAH	30				No	No	No	18	Yes	No	Yes	Yes	*Yes	Yes	No	No	Yes	Yes	Yes	No	No
VERMONT	*				Yes	No	*Yes	18	Yes	No	Yes		Yes	Yes	No	No	Yes	Yes	Yes	No	No
VIRGINIA	45	25	15	25	No	No	No		Yes	Yes	Yes	Yes	*Yes	Yes	No	No	Yes	Yes	Yes²	No	No
WASHINGTON	40	25	25	15	Yes	No	No	15	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes
WEST VIRGINIA	35	25	15		Yes	No	No	14	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	No
WISCONSIN	*	20	15		Yes	No	No	18	Yes	No	*No	Yes	Yes	No	Yes	No	No	No	No		
WYOMING	*	20	15		No	No	No	15	No	No		Yes	Yes		No	No	Yes	Yes	Yes	Yes	No

*Reasonable and proper

A-To drive cars cars
B-To drive cars registered in state visited
*Background privileges granted certain class

*Where view ahead is obstructed

*Must leave 15-ft. clearance for passing

a-City ordinance

*Unless at safety zone

*Where official stop sign is erected

*On wet pavement

*Restricted to-Not in cities to-Must be commercial when approaching vehicle is in sight

When accident occurs in town
*Other reports required
*When P.-wage is over $1,000
*Damage over $50.00
*Damage over $100.00

*In forest areas only

The Latest Billboard Decision

Supreme Court of Indiana Recognizes Evolution in Law Relating to Esthetics—City of Indianapolis Upheld in Prohibiting Outdoor Advertising Within 500 Feet of Parks and Boulevards—Compensation for Pre-existing Boards Required

By ALBERT S. BARD

THE case of *General Outdoor Advertising Company v. City of Indianapolis et al.*, decided by the Indiana Supreme Court June 27, contains encouragement for the anti-billboard fighters, and indeed for city planners generally. It expressly recognizes the evolution in the law relating to esthetic factors in modern urban development, and definitely declares that certain earlier decisions would never have been made had their cases been first presented today.

The specific ordinance upheld by the decision is one adopted July 8, 1922, by the Board of Park Commissioners of Indianapolis, prohibiting the location or maintenance of any billboard or advertising device or structure, or the leasing of any premises for the purpose, within 500 feet of any park, parkway or boulevard, and directing that all such existing structures within the city be removed. The Court upholds the ordinance as a proper exercise of the police power, but says that it may not be enforced against then lawfully existing boards unless and until compensation is provided for them in accordance with the terms of the same legislation that authorizes the prohibition (Acts 1920, Chap. 32: Section 10625, Burns, 1926). No compensation may now be claimed for the removal of any board on land leased for its erection since July 8, 1922, when the ordinance was adopted. Being illegal, such a board obtains no rights under the compensation clause. Whether or not a board erected since July 8, 1922, on land leased for the purpose prior to such date is to receive compensation, is not expressly or clearly decided. Perhaps that case does not arise. The billboard plaintiff emphasizes the existence of leases made prior to 1922 as the basis of its claim for protection.

Compensation

The Court says that the owner of protected boards "shall be paid due and full compensation at the fair present valuation of its existing [then or now existing?] business, boards, and leases for and during the term which they have to run." No express statement is made as to whether any compensation must be paid for a structure which is allowed to stand until its lease runs out; but in view of the Court's citation with approval of the recent Pennsylvania case, Liggett's Petition (1927), 291 Pa. 109, where a refusal to renew a previous permit for a board was upheld in spite of the investment in the structure itself, it would seem that the end of an existing lease will bring an end to all rights to compensation.

Significance of the Decision

The following excerpts from the opinion of the Court by Judge Martin (published in full in *The United States Daily*, July 9, 1930) indicate the significance of the decision:

"Under a liberalized construction of the general welfare purposes of state and Federal constitutions there is a trend in the modern decisions (which we approve) to foster, under the police power, an esthetic and cultural side of municipal development—to prevent a thing that offends the sense of sight in the same manner as a thing that offends the senses of hearing and smelling. [Citing cases.]

"But this trend must be kept within reasonable limitations, for citizens must not be compelled under the police power to give up rights in property solely for the attainment of esthetic objects . . . and under the law as it exists today esthetic or artistic considerations alone are not considered sufficient to warrant the exercise of the police power to prohibit advertising billboards generally throughout a city, because such considerations, of themselves, are not such a necessity as justifies the taking of private property without compensation. . . . But esthetic considerations enter in, to a great extent, as an auxiliary consideration, where the regulation has a real or reasonable relation to the safety, health, morals, or general welfare, . . . and where a regulation of billboards does not apply to an entire city, but merely applies to billboards in close proximity to public parks and boulevards, it may properly have a relation to the public health, comfort and welfare which it would not otherwise possess. . . .

"Parks are usually laid out, ornamented and embellished in such a way as to afford pleasure to the eye as well as to furnish a place for the resort of the public for recreation and exercise, and it is only reasonable that the surroundings of a park should be kept in harmony therewith if practicable to do so. The boulevards referred to in the case at bar are a part of the park system of the city of Indianapolis. Commercial traffic is not permitted thereon, and they are improved, maintained and controlled by the Board of Park Commissioners in the same manner as are the city parks (section 10629 Burns, 1926). Boulevards are treated as in law in many respects different from streets. . . .

"Whether an advertising billboard is a disfigurement or a desirable addition to a community depends upon the character of the surroundings in the community as well as upon the billboard advertising itself. But the determination of such a question and the determination of what regulations or what prohibitions within certain areas there shall be of billboards under the police power is—subject to the limitations hereinbefore stated—for the legislative body of the city. . . .

"As social relations become more complex, restrictions on individual rights become more common. Restrictions which years ago would have been deemed intolerable and in violation of the property owners' constitutional rights are now desirable and necessary, and zoning ordinances fair in their requirements are usually sustained. . . .

"A zoning law (sections 10372-10380 Burns, 1926) and ordinances enacted thereunder have been in effect in this state and in municipalities thereof for eight or nine years, and their constitutional validity has never been questioned in this court. Under laws and ordinances of this character many regulations and limitations of structural design and property use have been upheld which bear no closer relation to the public safety, health, morals, and general welfare, or public comfort, convenience and prosperity (which latter terms are also included in the recent cases) than does the ordinance concerning billboards in the instant case."

Relating to Zoning

The Court refers to certain earlier cases in Colorado, Illinois, Kansas, Massachusetts, New Jersey, New York, North Carolina and Ohio, including cases which held that billboards within given distances of parks and boulevards could not be prohibited, and continues:

"Most of these cases were decided prior to the complete development of the law concerning the regulation of billboards, and all of them were decided prior to the decision of the many cases approving the so-called zoning laws. Recent cases in the states last above cited have upheld zoning laws and ordinances [citing cases]; and it is reasonable to presume that if cases wherein laws and ordinances sought to prohibit billboards within close proximity to public parks and boulevards were to be decided today in those states, they

would reach the same result as was reached in Liggett's Petition, supra, and as is reached in the case at bar."

Among appended notes is the following referring to *State, ex rel. Civello v. New Orleans* (1923), 154 La. 270:

"In sustaining a zoning ordinance of the city of New Orleans, under which a retail grocery store (Piggly-Wiggly) was excluded from a residence district, the Court said: 'If by the term 'esthetic considerations' is meant a regard . . . for outward appearances and good taste in the matter of the beauty of the neighborhood itself, we do not observe any substantial reason for saying that such consideration is not a matter of general welfare. The beauty of a . . . residence neighborhood . . . is for the comfort and happiness of the residents, and it sustains . . . the value of the property in the neighborhood.'"

Five Points of Special Interest

The attention of students of the law of zoning, city planning and esthetics may be briefly called to several points:

1. "General welfare" is now explicitly extended to cover "public comfort, convenience and prosperity." The preservation of the amenity of places certainly affects their "prosperity," because amenity affects values, not merely as private property in the hands of a larger or smaller group of private owners, but as a source of public taxes.

2. How "incidental," "subordinate" or "auxiliary" must esthetic considerations be in order to prevent their inclusion becoming fatal to an exercise of the police power? At what point must the balance come? The earlier cases stated that "if the primary and substantive purpose of the legislation is such as justifies the act, considerations of taste and beauty may enter in, as auxiliary"[1]; "that, in addition to these sufficient facts, considerations of an esthetic nature also entered into the reasons for their passage, would not invalidate them" (the restrictions upon private property)[2]; "the Supreme Court of the United States has, however, gone so far as to approve in substance the views of the Massachusetts Supreme Court that esthetic consideration might be considered as auxiliary of what thus far have been regarded by the courts as more effective and sufficient reasons. . . . But the restriction of advertising matter referred to in this case is a minor incident; the main regulations are of height and of open spaces, and these provisions are not rendered invalid because consideration is given to appearance of buildings as a minor and auxiliary reason"[3] (*citing Welch v. Swasey, supra.*)

The Indiana case under discussion seems to shift the emphasis. Subordination of the esthetic factor need no longer appear. So long as the legislation intended to foster the esthetic and cultural, and to prevent offenses to sight in the same manner as offenses to the ear and nose, is not exclusively and solely esthetic, it will be supported. The courts will not undertake a nice adjustment of proportions, but will leave that to the legislative branch, with every intendment in favor of the legislation, declaring only that legislation invalid which, being based exclusively on esthetic considerations, has no recognized legislative basis whatever.

3. A new emphasis is given to the argument that billboards are in a class by themselves and may be dealt with as such, without a too nice regard for the inclusion of other businesses in the regulations. "The latter (house signs, sky signs and billboards) belong exclusively to a class of their own, on account of their character, structure and inherent weakness" (as compared with ordinary buildings)[4]. "There remains sufficient to convincingly show the propriety of putting billboards, as distinguished from buildings and fences, in a class by themselves."[5] "This Court has recognized the correctness of the decision in *St. Louis Gunning Advertising Co. v. St. Louis* . . . that billboards properly may be put in a class by themselves."[6]

The new Indiana case repeats the statement. This doctrine is precisely what the billboard men do not want. They want no regulation whatever unless and until all other business is hobbled with the same restrictions. Their claim is that if billboards must stay 500 feet away from parks and boulevards, every other kind of business, seen or unseen, must be kept away the same distance. This Indiana case, following the Missouri and United States Supreme Court cases, holds to the contrary.

4. The Indiana case gives aid and comfort to those who would discriminate between localities of different sorts, and who hold that localities with a special character may receive special protection. Indeed, some stress is laid by the Court upon the fact that the prohibition in Indianapolis is not general or city-wide, but is limited to areas where the prohibition is especially needed and appropriate. In this respect the decision accords with zoning principles, and with the cases where ordinances are sustained which prohibit overhanging signs on certain blocks of certain streets, while permitting them on other blocks of the same streets and in neighboring streets (*Oppenheim Apparel Corporation v. Cruise*, 118 *Miscellaneous* (N. Y.) 368; *Lenon v. Porter*, 65 Superior Court (Pa.) 94.)

5. The Indiana case (like the others) holds that the ordinance is in accord with the Federal Constitution as well as that of the state. This is important in view of the efforts of the billboard industry to raise in these cases a separate and additional question under the Federal Constitution.

[1] *From Welch v. Swasey* (1907) 193 Mass. 364.
[2] From *Welch v. Swasey* (1909) 214 U. S. 91.
[3] From Matter of *Wulfsohn v. Burden*, 241 N.Y. 288.
[4] From *St. Louis Gunning Co. v. St. Louis*, 235 Mo. 99; 192.
[5] From *Cusack Co. v. City of Chicago*, 242 U. S. 526; 529.
[6] From *St. Louis Poster Advertising Co. v. St. Louis*, 249 U. S. 269; 274.

Safeguarding English Scenery

SECTION 11 of the English Petroleum (Consolidation) Act referred to in an article in THE AMERICAN CITY of June, entitled "Toward Legal Control of English Gas Stations," at page 142, confers powers on county and borough councils to make bye-laws: (1) to regulate the appearance of petroleum filling stations in specified areas and in particular to specify requirements "as to the position, design, size, color and screening of such stations or of any part thereof"; and (2) to prohibit the establishment of petroleum filling stations and require their removal (on payment of compensation) from other specified areas.

These powers were granted "for the purpose of preserving for the enjoyment of the public the amenities of any rural scenery or of any place of beauty or historic interest or of any public park or pleasure promenade or of any street or place which is of interest by reason of its picturesque character."

Provision is made that the areas wherein the appearance of petroleum filling stations shall be regulated or their presence prohibited, shall be distinctly marked and shown upon plans to be signed by and deposited with the clerk of the council making the bye-laws. The Act recognizes that since the esthetic character of individual places varies widely, every ordinance-making authority should, as far as possible, consider separately and on its own merits each part of their area which comes within the scope of the Act.

In addition to presenting the set of bye-laws, the Departmental Committee stresses the fact that for special areas of beauty or historic interest, more detailed or stringent bye-laws may be desirable. The actual *color of pumps* can be given, or even the named varieties of trees or shrubs specified for making a screen. "Similarly, in the case of a picturesque street, it would be open to the Council to make special bye-laws requiring every petroleum filling station established within the area to which the bye-laws applied to comply with such requirements, for example, *as that no part of any apparatus should be visible to the public from any point in the street*, that every roof and wall visible to the public from any point in the street should be respectively tiled and faced with the natural stone of the country, and that all screening used should consist of walls built of such stone."

A New Proposal for Regional Government and Planning

By ROWLAND A. EGGER
DEPARTMENT OF POLITICS, PRINCETON UNIVERSITY

OF outstanding importance in the development of regional government and planning in the United States is the measure which was introduced in the 1930 Legislature of New Jersey, entitled as follows: "An Act subdividing the state of New Jersey into regional districts for governmental purposes, incorporating such districts as bodies politic and corporate, providing for their government and granting and defining the powers thereof."[1]

Almost a decade has passed since Dr. Maxey launched his polemic against the governmental disintegration of metropolitan areas.[2] It has been nearly fifteen years since the first regional charter in the United States was drafted—the Alameda County charter of 1916.[3] It has been nearly five years since Professor Thomas H. Reed, the protagonist of regionalism in the United States, made the initial statement of the case for regional government.[4] It has been a scant twelvemonth since Allegheny County, Pennsylvania, rejected a charter setting up a regional government for her metropolitan area.[5] Meanwhile, the physical planning of regions—inspired by Burnham's injunction to "make no little plans; they have no magic"—has continued apace. The recent action of the New Jersey State Planning Commission in its recommendations to the Legislature is important to the regional movement as a national phenomenon.

Principal Features of the Proposed New Jersey Regional District Act

The proposed act divides the area of the entire state into four regions: The North Jersey Metropolitan Regional District, centering on Newark, and including the counties of Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, and Union; the South Jersey Metropolitan Regional District, centering on Camden, and including the counties of Burlington, Camden, Cumberland, Gloucester, Mercer, and Salem; the Atlantic Regional District, centering on Atlantic City, and including the counties of Atlantic, Cape May, Monmouth, and Ocean; and the Delaware Regional District, including Hunterdon, Sussex, and Warren Counties.[6]

The regional districts are to be governed by district commissions, composed of one member from each county in the Region. These commissioners are popularly elected, and serve for a term of four years—having overlapping tenures. Vacancies in the commissions are filled for the unexpired term by a majority of the total membership of the board of chosen freeholders in the county from which the replaced member was elected. Each of the members of these district commissions is entitled to compensation at the rate of $5,000 per annum, and to reimbursement of expenses incurred in the discharge of official duties. The chairman of each commission receives an additional $1,000 annual salary. The chairman and vice-chairman of each commission are ultimately contemplated to be only presiding and ceremonial officers, with the substantive administrative functions vesting in a technically trained expert and his staff.

Among the general powers of the commissions is included that "to appoint, at the discretion of the commission, an executive officer to supervise and coordinate the works of the district and to study and recommend to the commission such public works and undertakings, together with the estimates of cost and recommendations for financing the same, as from time to time he may deem wise, and generally to act as executive and advisor to said commission, within such limits of authority, for such term, and at such compensation as the commission shall determine." Obviously enough, this section contemplates the creation of the equivalent of a Regional District Manager, and is one of the most progressive aspects of the regional idea.

Regional Planning and Public Works

The sections relating to regional planning and the construction, maintenance, and supervision of public works are sufficiently concise to be quoted. The commission, through its duly constituted administrative organization, is empowered:

"To undertake a continuous study of the needs of the district, in whole or part, as they relate to public works, services, and utilities; to study, and, after public hearings as provided for in section 301-n, adopt a regional plan for the coordinated development of the district as a whole, and to study the possibilities and advantages of coordinating or consolidating existing and new public works, services and utilities, whether publicly or privately owned and/or operated.

"On its own initiative, or at the request of any municipality or county within the regional district, to construct, purchase, or otherwise acquire and maintain and operate any public works or utilities affecting more than a single municipality or county, of a type or character which any municipality or county therein, within its own territory and for the use of its own inhabitants, would have the power to construct, acquire, maintain, or operate, including the power to purchase, acquire, and/or take over for the benefit of two or more municipalities or counties, any existing public works or utility, either privately or publicly owned.

"To allocate to the district as a whole all costs in connection with the financing, acquisition, construction, maintenance, and/or operation of any public works, services, facilities and/or utilities benefiting and which constitute proper charges upon the entire district, and to allocate to any county or counties, or municipality or municipalities or to any portions of such county or counties, municipality of municipalities, all or part of the cost of financing acquisitions, construction, maintenance and operation. . . .

"To enter in and upon any lands within or without such regional district, by its officers, agents, servants, or employees for the purpose of investigation, exploration, surveying, location, establishment of grades or any other necessary or proper work in connection with the regional survey study, preliminary to the undertaking of any public work or works.

"To acquire all properties, whether real or personal and whether situated within or without the limits of such district, necessary or proper for the purposes for which said district is established, by gift, devise or purchase or by eminent domain in accordance with the provisions of law.[7]

"To enter in and upon and to lay in, upon, under and/or over any public street, road, highway, or place, any pipelines, tracks, culverts, bridges, embankments, retaining walls, and/or such other structures and appurtenances as shall be reasonably necessary to carry out the engineering plans for the completion of any public work or works authorized and undertaken under the provisions of this act; to divert and change the course of streams, to relocate highways, railroads, canals, pipe lines and conduits wherever it shall be necessary or reasonably proper for the carrying-out of such work or works.

"To contract with any municipality, county, regional district, corporation, association or person for any services and/or facilities developed or required by the district; to contract for the coordination, combination or consolidation of such services and/or facilities with existing or projected services and/or facilities of similar type and character, and generally to act in regard to properties acquired or constructed by it in relation to other public utilities in the same manner and to the same extent as a private corporation operating such works or supplying such services and/or facilities might contract."[8]

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[1] *Assembly*, No. 355. Introduced by Mr. Kautz on March 10, 1930.

[2] Maxey, C. C.: "The Political Integration of Metropolitan Communities," *National Municipal Review*, XI, p. 229 *et seq.* (August, 1922. Supplement).

[3] This charter was drafted by Dr. Reed at the request of citizens' organizations in Alameda County. It never was put up for adoption. For an analysis of the county charter, adopted in 1927 see Cuncannon, P.: "The New Charter of Alameda County, California," in *American Political Science Review*, XXIII, p. 124. (February, 1929).

[4] "The Region, A New Governmental Unit," *National Municipal Review*, XIV, p. 417 (July, 1925).

[5] See author's article, "Pittsburgh—The World's Third Federated City," in THE AMERICAN CITY for June, 1929, page 130 (outlining in some detail a proposal which subsequently failed of adoption at the polls).

[6] The act would be mandatory upon the North and South Jersey Metropolitan Regional Districts, and permissive as to the Atlantic and Delaware Districts contingent upon its ratification by one-half of the boards of chosen freeholders in the counties included within the districts, and subsequent popular affirmation at the polls. *Assembly*, No. 355 (1930), Art. IV, Sec. 408, and Sec. 408a.

[7] Laws of New Jersey, 1900. Ch. 53.

[8] *Ibid.*, Sec. 301n. For comparison with the proposed powers with regard to public works in the Allegheny County Charter, see author's article, *op. cit.* Cf. for Berlin, Satzung für das Verkehrswesen, *Dienstblatt der Stadt Berlin*, 428 I 25; also W. Brell and W. Körner, *Berliner Ortsrecht*, p. 177 (Berlin, 1925). See for planning and housing powers Satzung für das Siedlungs- und Wohnungswesen, *Dienstblatt*, etc., 18 V 25; Brell and Körner, *op. cit.* 209 *et seq.*

Taxation and Finance in Districts

The powers of the regional districts under the terms of the statute are equally broad with reference to fiscal affairs. They are empowered to utilize five methods in defraying expenses incurred in the performance of their functions as outlined in the law:

1. By taxation of the district as a whole.
2. By contact with municipalities or counties which may agree to pay in whole or in part the costs of any public works undertaken by the district.
3. By special assessment districts, including all or portions of any counties or municipalities within the district. The amount of the special assessment, however, shall not exceed the amount of the peculiar benefit accruing from the construction proposed.
4. By the creation of special taxation districts, including all or portions of any counties or municipalities within the district.
5. By the issuance of bonds pledging the full credit of the district.

The taxing powers of the districts are equally comprehensive. Each district is authorized:

1. To levy an annual general tax upon all taxable property upon which county taxes are assessed, levied, and collected in all taxing districts therein for the general administrative and operating expenses of the district. The amount of this tax is limited to one-twentieth of one mill upon each dollar of the total assessed valuation of the entire district.
2. To levy a tax upon the taxable property of all taxing districts within the district for the interest and capital charges for all bonds and obligations of the district.
3. To levy taxes upon all taxing districts within the district for the payment of district obligations in the construction of public works or utilities; to tax within the special districts mentioned above for the construction of any works or utilities benefiting less than the entire district.

The bonding power of the district is restricted to 2 per centum of the average of the last three valuations of realty and improvements within its territory, and its bonds must be issued under the general laws[9] of the state governing such emissions.

It should be noted that no attempt is made in this act to extend the area of tax assessment, as the Pittsburgh charter proposed,[10] or to secure regional administrative supervision, as the Berlin law established.[11] This is doubtless due to the considerable degree of centralized administrative control maintained by the Department of Municipal Accounts of the state government. The presence of a well-organized and efficiently conducted state constabulary, whereby adequate patrol of rural and suburban areas is assured, likewise accounts for the absence of provisions centralizing police administration.[12]

It should be noted further that the powers of counties and municipalities under the terms of this act are in no manner affected save as the larger functions of regional importance are delegated to regional districts. Nothing is taken from the sub-regional administrative areas which they are able profitably to retain.[13] Unquestionably, this proposal constitutes the most far-reaching and significant experiment in regional federalism which has yet been offered for serious consideration. The Commission, after considering the alternatives to regionalism, such as annexation and consolidation, state control, and voluntary cooperation, decided in favor of the federated plan:

"It is the opinion of your Commission, arrived at after close, lengthy, and careful study of the methods and systems above described and of the conditions and needs of the metropolitan districts of New Jersey, that an additional governmental agency is necessary in our state to provide regional public works and improvements in these districts. The proposed agency is a new subdivision of the state government, incorporated as and vested with the powers of municipal corporations, having jurisdiction over an area corresponding in size with the extent of the regional need for improvements and public works. This agency would have equal authority with the county and municipal governments. . . . Its authority would be confined to such classes of major public works as are essential to the best development of the region or district as a whole. It would not in any way interfere with the control of established utilities or works now owned by the municipalities, excepting with their consent. In providing an agency for securing the major improvements which are the principal reasons for annexation or consolidation, the effects of the operation of the regional districts would probably be to destroy the major arguments in favor of municipal consolidation and to relieve the smaller municipalities of the fear of being forcibly annexed."[14]

Professor Dodds and his colleagues on the State Planning Commission[15] are indeed to be congratulated for their boldness in proposing this sweeping attack on the metropolitan problem. While the fate of the measure at the present session is highly problematical, the ultimate solution of the inter-municipal problem in New Jersey along the lines suggested by the Commission is well-nigh inevitable. Students of local government, advocates of regionalism, and regional planners, may find in this proposal the concrete institutional manifestation of a philosophy which has been gathering impetus for more than a decade.

[9] *Laws of New Jersey*, 1916. Ch. 252.

[10] See author's article, *op. cit.*

[11] Satzung für das Finanz- und Steuerwesen, *Gemeindeblatt der Stadt Berlin*, 1925 C 7.

[12] The Commission does, however, make a number of recommendations concerning police administration, such as a central identification bureau, a state teletype broadcasting system for police purposes, etc. See "Regional Government," Report of the Commission to the Governor, March 18, 1930, p. 15 *et seq.*

[13] See also in this connection *Report of the North Jersey Transit Commission*, 1929, p. 47.

[14] *Report of the New Jersey State Planning Commission*, p. 13 *et seq.* However, the sub-regional areas are still free to pursue their programs of urban integration and readjustment. Trenton, for example, is considering an extensive annexation project at the present time, which the Regional District Act probably will not affect. See Dodds, H. W.: "Survey of Annexation Problems Affecting the City of Trenton and Surrounding Townships," *Trenton Times*, February 9-13, 1930.

[15] This Commission was created by Joint Resolution No. 12, *P. L.* 1929.

A Comment from the Regional Plan Association

TO learn how closely the proposed legislation, outlined in the foregoing articles, conforms with the ideas of the groups especially concerned with regional planning in the New York metropolitan area, THE AMERICAN CITY submitted a proof of the article to George B. Ford, General Director of the Regional Plan Association. Mr. Ford's comment follows:

"I have just been reading with the greatest interest the proof of Mr. Rowland A. Egger's analysis of the proposed New Jersey Regional District Commission Bill.

"From the standpoint of the Regional Plan of New York and Its Environs, we of the Regional Plan Association are convinced that the creation of the North Jersey Metropolitan Regional District is a step which should prove of the utmost importance in the realization of a Regional Plan. The area covered by the proposed North Jersey District is identical with the New Jersey area covered by the Regional Plan except for Monmouth County, which prefers to be grouped with the other ocean-shore counties.

"The State Highway Commission is today laying down and executing satisfactorily most needed highways of regional import throughout northern Jersey. The various county park commissions are going a long way towards the rounding-out of a regional park and parkway system. The Port Authority is successfully handling the bridge, tunnel and many of the railroad problems. However, there remain a number of other problems, for the handling of which no effective regional authority exists. These problems are primarily meadow reclamation, flood control, water-supply, sewage disposal, and rapid transit. The proposed district commissions should serve a unique purpose in undertaking to solve these vital problems.

"In solving them effectively, each district commission will find that it has to prepare coordinating plans of all public improvements of regional interest, including highways, parks, parkways, railroads, the port development and even the general allocation of land use. However, they would be responsible for the execution of only the five utilities first mentioned.

"A recent study of the County Planning Enabling Act, County Park Commission Act, and Municipal Planning Act seems to show that there need be no danger of overlapping or confusion as to the function and authority of any county or mu-

nicipal planning commission in its relations with the district commission. On the contrary, they should easily supplement and help each other.

"A great incentive to the passage of this bill lies in the numerous active recent attempts to consolidate various communities or to annex them to larger cities. The small municipalities have naturally resented this attempt to take away their independence, and I believe very justly so, so that the proposed Regional District Bill comes as a godsend, for if it means anything at all it should serve in a much more effective way to solve the very problems for which annexation had been proposed as the only remedy.

"As far as I am aware, no such comprehensive regional commission for planning and executing has yet been created, and as such a pioneer effort, it is to be commended most strongly. Of course we have such commissions as the Metropolitan District Commissions around Boston, but each of the three commissions there exists for only one specific purpose, including only a limited number of municipalities and at best has no coordinating function. The Niagara Planning Commission is quite limited in area and had no power of execution. In some senses the Port Authority of New York most nearly approaches the proposed Regional District Commission and must have served as an inspiration, but it is strictly limited in the scope of improvements assigned to it.

"In general, this New Jersey project is bound to be watched with the greatest interest by the country as a whole and will undoubtedly serve as a point of departure, if not as a model, to many other metropolitan regions."

Louisville Can Now Plan Effectively

By H. W. ALEXANDER
RESIDENT ENGINEER, HARLAND BARTHOLOMEW AND ASSOCIATES

TWO laws of great importance to city planning in Louisville have been enacted by the General Assembly of Kentucky and became effective on June 15, 1930. While this legislation applies only to Louisville, second-class cities have enjoyed much less specific powers for several years.

The legislation was prepared by Rowan Hardin, of the City Attorney's office in Louisville, assisted by Harland Bartholomew and William G. Senn, of St. Louis.

The first bill, "The City Planning and Zoning Enabling Act,"* is a combination of the Standard or Hoover Zoning and City Planning Enabling Acts, and follows their texts very closely. The section of the Hoover Act on Regional Planning is omitted, the intention being to prepare a special act relating to this most important subject in the near future. Certain portions of the recent New York legislation relating to the establishment of building lines under the police power are included. The act is composed of four main sections: (1) Creation and Powers of the Planning Commission; (2) Zoning; (3) Subdivision Control; and (4) Mapped Streets.

The Planning Commission as appointed by the Mayor consists of nine members, four of whom are city officials, and five citizens at large. The Commission is empowered to make a master plan of the city and any area outside the city which bears a relationship to the planning. Upon completion of the plan or any major part thereof, it may be adopted by the Council and thereafter all public improvements must be made in conformity with the plan.

The city of Louisville is now preparing a comprehensive zoning ordinance under the grant of power contained in the act, whose provisions are identical with the Hoover Zoning Enabling Act.

* See July issue at page 163.

Subdivision Control Beyond City Limits

The city is given power to regulate and control the subdivision of land within the city and for a distance of five miles beyond the city boundaries. Certain regulations may be adopted after public hearing which shall govern the arrangement of streets, the provision of open spaces and the size of lots. Penalties are provided for the transferring of lots in unapproved subdivisions, and the sale of lots by metes and bounds is prohibited. The County Clerk who records an unapproved plat is deemed guilty of a misdemeanor. Louisville has had legislative authority for the control of subdivisions within three miles of the city limits for the past twenty-four years and has exercised this power in as effective a manner as was possible without a master plan for guidance.

The Council is authorized to adopt an official map showing all existing streets and future street lines as determined by the Major Street Plan. No building permit will be granted for the construction of a building in the bed of any mapped streets, but provisions are made for adjustments in cases of unusual hardship. In the language of the act, "the Board of Zoning Appeals . . . . shall have power in a specific case . . . to grant a permit for a building in such street or highway *which will as little as practicable increase the cost of opening such street or highway* . . . . and such board may impose reasonable requirements as a condition of granting such permit, which requirements shall inure to the benefits of the city." No compensation is to be paid for the reservation of land for future street purposes, all such reservations being made under the police power.

The Major Street Improvement Act

The second act is entitled the "Major Street Improvement Act" and is designed to enable the city to carry out a comprehensive program of major street widenings under the power of eminent domain. Under the terms of the act, after adoption of the Major Street Plan by Council, the Planning Commission may recommend that an ordinance be prepared to initiate any Major Street improvement.

After preparation of the ordinance, which includes the establishment of a taxing district upon which the cost of the project may be assessed, public hearings are held, after which the Council may finally pass the ordinance.

Suit is immediately filed by the city against all property owners whose land is to be taken for the improvement. After the filing of the petition, the Court appoints a board of appraisers whose duty is to determine the amount of damages resulting from the improvement and also the amount of benefit that can be found. Any property owner may file exceptions to the report of the board of appraisers and by exercise of his constitutional rights may demand a jury trial.

The city may immediately take possession of the property of any owner who does not object to the findings of the board of appraisers by paying the amount determined by the board into court. The difference between the total cost of the improvement and the total benefits which may be assessed is paid by the city, and the city's share will vary on different projects.

Louisville has partially completed a comprehensive city plan and expects to make use of the new legislation shortly after it becomes effective by officially adopting the Major Street, Transit and Transportation Plans. It is planned also to execute a very important street-widening project under the authority of the Major Street Improvement Act.

Model Law for County Manager Government Now Available

By HOWARD P. JONES

PUBLIC RELATIONS SECRETARY, NATIONAL MUNICIPAL LEAGUE

A MODEL County Manager Law, which is expected to lend impetus to the rapidly growing interest in the improvement of county government, will be published this month by the National Municipal League. A committee of the League has been working on the draft for more than a year.

In principle, the law parallels the Model City Charter of the League. A small county board, elected at large, is provided for, the board appointing the county manager, who in turn appoints the heads of the departments.

Emphasis has been placed in the draft on simplification of the county organization. Leaving out of consideration the administration of justice, only three departments are specified—public works, public welfare and finance.

The committee of course recognized that it would be vain to attempt to develop one set-up which could apply uniformly to all counties. Three general types of counties are recognized as requiring varying treatment: the rural county; the urban-rural county; and the urban county.

A five-member board is recommended for the first type; a seven-member for the second type. Furthermore, guarantee of adequate representation on the board should be given the urban districts in the second type of county. For the third type of county, the Butte-Silver Bow charter and the Pittsburgh federal plan are cited as instances of a sound working organization.

Even within these general classes, however, the committee appreciates that the bill may not be used without some alterations. Wide variation among the titles and functions of county officers in different states made the job of attempting to draw up a law uniformly applicable an impossible task. The general outlines of an effective administrative organization for county government have, however, been laid down.

The problem of reform in county government is of course legally more difficult than city government because of the fact that many elective officers are fortified by being specifically mentioned in the constitutions of their states. Consequently, the extent of the manager's authority is a serious question.

The committee clearly felt that to progress part-way was better than not to progress at all. While the short ballot is vigorously endorsed, and emphasis is laid upon the importance of concentrating authority in the county manager in order to centralize responsibility, the committee encourages efforts in the direction of county management even where a few officers may remain elective.

Skillful steering around some of the worst snags in the county stream is evident in the draft. One of these is the problem of education. The bill gives the board of education the power to delegate any of its administrative functions to the county manager through the county board, but does not tread on the toes of the school men by requiring any abrogation of authority.

The administration of justice, always a controversial issue, caused a division in the committee, and the matter was sidestepped. Members of the committee agreed that the sheriff should be appointed but could not agree as to whether he should be appointed by the county manager or by the state attorney general.

The financial set-up concentrates all the functions of assessment, collection, custody and control of public funds in the director of finance, in accordance with the most up-to-date experience in this field. A check is provided for the board through employment of an outside auditor.

Publication of the Model County Manager Law is expected to stimulate considerable activity in the direction of the improvement of county government. Movements now under way in a number of states should be strengthened and new interest aroused where none now exists.

The personnel of the committee responsible for this important document follows:

Members of Committee

John A. Fairlie, *Chairman*,
University of Illinois, Urbana

Paul W. Wager, *Secretary*,
University of North Carolina, Chapel Hill

Frank G. Bates,
Indiana University, Bloomington

Otho G. Cartwright,
New York

James Errant,
University of Oklahoma, Norman

Luther Gulick,
National Institute of Public Administration, New York

A. R. Hatton,
Northwestern University, Evanston, Ill.

Howard P. Jones,
National Municipal League

Wylie Kilpatrick,
Commission for Investigation of County and Municipal Taxation and Expenditures, Trenton, N. J.

J. Noel Macy,
Westchester County Publishers, Inc., White Plains, N. Y.

Samuel C. May,
University of California, Berkeley

Clarence E. Ridley,
International City Managers' Association, Chicago

Benjamin F. Shambaugh,
University of Iowa, Iowa City

Henry M. Waite,
Cincinnati Union Terminal Company

1930 Census Figures—Cities Over 50,000

THE twenty-eight cities in the following list include those having over 50,000 population, according to the 1930 preliminary enumeration as released by the Department of Commerce, from June 21 to July 21. Similar figures have appeared in the two previous issues of THE AMERICAN CITY, that of June containing the population of 43 cities, issued before May 20, and the July number listing 87 cities whose populations were issued between May 21 and June 20. Of the cities having 50,000 population or over in the 1920 census, there remain 27 cities for which official preliminary figures for 1930 are still to be reported:

City	1920 Census	1930 Census
Asheville, N. C.	28,504	50,159
Atlanta, Ga.[1]	200,616	[2]
Beaumont, Texas	40,422	57,483
Boston, Mass.	748,060	783,451
Canton, Ohio	87,091	105,524
Cicero, Ill.	44,995	65,776
Columbus, Ohio	237,031	289,056
Dayton, Ohio	152,559	200,225
Dearborn, Mich.	2,470	50,060
Denver, Colo.	256,491	287,644
Duluth, Minn.	98,917	101,231
East Chicago, Ind.	35,967	54,660
Hammond, Ind.	36,004	64,523
Harrisburg, Pa.	75,917	80,284
Holyoke, Mass.	60,203	56,555
Lowell, Mass.	112,759	100,300
Lynn, Mass.[3]	99,148	102,327
McKeesport, Pa.	46,781	54,631
Minneapolis, Minn.	380,582	462,611
New Orleans, La.	387,219	455,792
Omaha, Nebr.	191,601	214,175
Pittsburgh, Pa.	588,343	669,631
Portsmouth, Va.	54,387	45,353
St. Joseph, Mo.	77,939	80,944
St. Paul, Minn.	234,698	270,883
San Francisco, Calif.	506,676	625,974
Savannah, Ga.	83,252	84,714
Schenectady, N. Y.	88,723	95,652
Sioux City, Iowa	71,227	79,031
Springfield, Mass.	129,614	149,861
Winston-Salem, N. C.	48,395	75,272

[1] Legal decision pending.

[2] An Act of the Georgia State Legislature, approved August 17, 1929, incorporated the municipality of "Atlanta," and included therein the areas known as the boroughs of Atlanta, Avondale Estates, College Park, Decatur, East Point, and Hapeville, and unincorporated communities Nos. 1 to 15, inclusive. The following 1930 population figures for this municipality, based on the supervisor's preliminary counts and subject to correction, were announced on June 6, 1930, by the Bureau of the Census.

Atlanta, total	353,722
Borough of Atlanta	266,557
Borough of Avondale Estates	525
Borough of College Park	6,549
Borough of Decatur	13,616
Borough of East Point	9,501
Borough of Hapeville	3,614
Unincorporated Communities Nos. 1 to 15, inclusive	53,360

[3] Revised.

Of the cities in the foregoing list which submitted chamber of commerce estimates for publication in the April number of THE AMERICAN CITY, there are five whose estimates have proved to vary less than 5 per cent from the actual census figures. The most accurate estimate this month is that of the San Francisco Chamber, which was 625,000, the actual figures, as reported by the Bureau of the Census, being 625,974. The Holyoke estimate was second closest, being 58,000 as compared with 56,555 actual. The other three estimates, within the 5 per cent, were those of Schenectady, 98,650 estimated, 95,652 actual; Lowell, 105,000 estimated, 100,300 actual; Dayton, 191,347 estimated, 200,225 actual.

A Year-Round Recreation Program for the City of 8,000 and Over

By ARTHUR P. ECKLEY
DIRECTOR, DEPARTMENT OF RECREATION,
TWO RIVERS, WIS.

THE need of a program of recreation in every community is becoming more evident year by year. Just what the nature and extent of this program should be will vary according to the size of the community, its natural facilities for recreation, and the inherent interests of the people. A city that is composed largely of Scandinavians would have a strong program of winter sports; likewise, a city located on a body of water that lends itself readily to boating, bathing and other water activities would surely utilize this natural asset in its program.

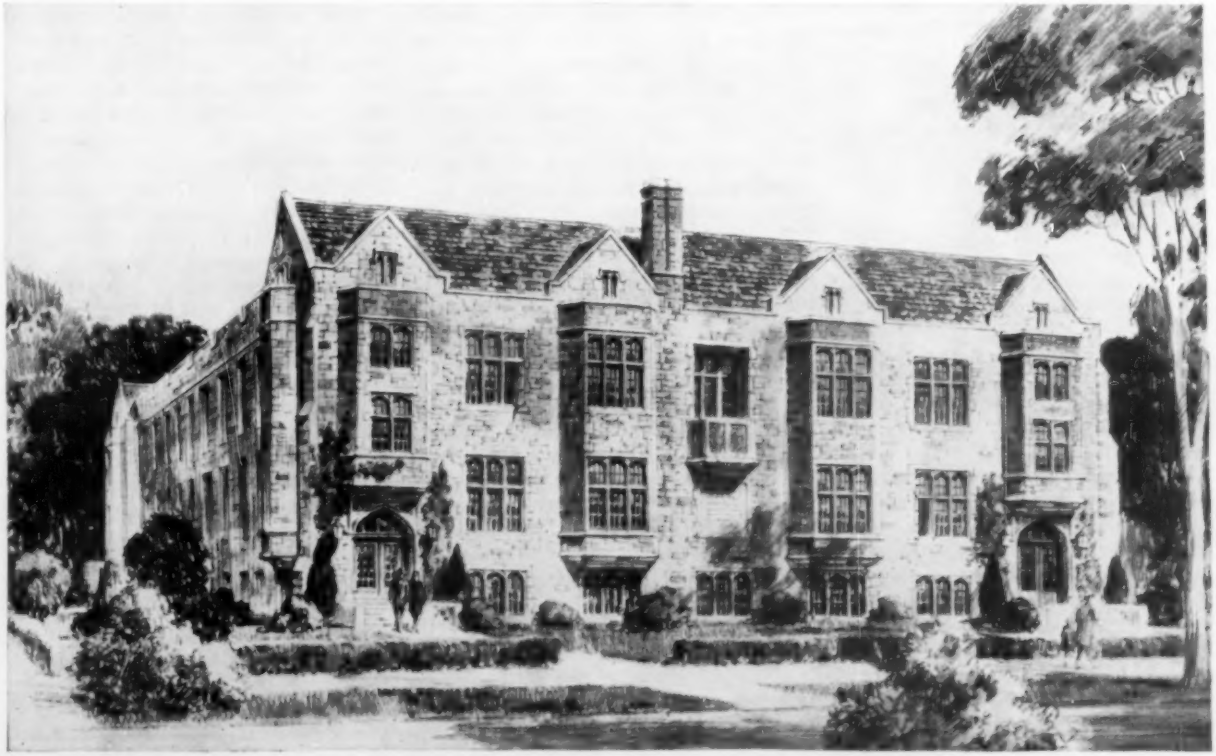
The experience of the city of Two Rivers, with a present population of 10,048, bears ample evidence that a city having a population of 8,000 or more can justify the appropriation of funds for a full-time worker to organize and promote a program of recreation. The principal function of a department of recreation is to provide leisure-time activity for persons of all ages. The increasing amount of leisure time that people have today calls for a new means of expressing their desires. Unless these desires are directed into channels of wholesome activity, they become a community menace. The greatest justification of a program of recreation is found in turning these desires into public assets.

Using the School Facilities

In making a survey several years ago, Two Rivers found that like many other cities it had thousands of dollars invested in school gymnasiums, parks and playgrounds with no programs for their use. As a result of this survey, a Department of Recreation operating as an arm of the municipal government was established. The policies of this Department are determined by a board of seven members appointed by the City Manager. The Department operates on a budget which is appropriated by the Common Council. The budget last year was $8,500, of which about $2,500 goes for extension of facilities, and $6,000 for carrying out the program of activities.

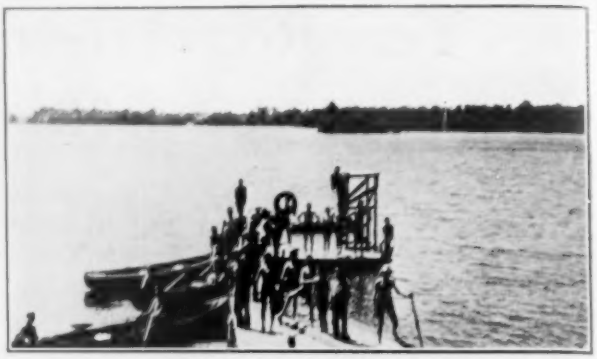
The first action of the new commission was to establish a relation with the public schools whereby all school gymnasiums, meeting-rooms, and playgrounds were made available to the Department of Recreation at any time except when the school program necessitated their use. By this action it was made possible for the young men and women graduates of our local educational institutions to go back to their old schools and participate in activities that they had been taught in their courses of physical education, music and dramatics but for which the community had failed to provide an outlet *through failure to provide facilities.*

The program in Two Rivers is an all-year program and includes the operation of three playgrounds throughout the year, the sponsoring of a summer camp for boys and girls, the organization of boys' and girls' clubs within the churches, the organization and promotion of an all-year program of municipal athletics,



THE NEW RECREATION BUILDING AT TWO RIVERS

AN EQUIPPED PLAYGROUND
One of the Jungle-Gyms in the foreground



THE BEACH IN SUMMERTIME
A popular spot with everyone

the promotion of swimming activities, on the beach in summer and in the pool during the winter, the sponsoring of a women's chorus of sixty voices and a men's chorus of forty-five voices, the operation of skating-rinks, and the preparation of many community programs through the year. The director is provided with such assistance as he needs to carry on this program.

The three city playgrounds are open from 3:30 P. M. until dark throughout the school year and during the entire day and evening the rest of the year. Public and parochial school athletic leagues make up the school-year program, while other activities such as handcraft, story-telling, games and music are added for the vacation program.

During the evening large numbers of employed adults are attracted to the playgrounds by the organization of athletic leagues, free outdoor movies and special event programs. The summer camp is attended by members of the various clubs that are sponsored by the Department. All the advantages of the commercial camp are given to these boys and girls for the moderate fee of $6 per week.

Worth-While "Gangs"

The Department capitalizes the juvenile gang instinct by organizing boys' and girls' clubs and directing their activities. All clubs are affiliated with churches of the city and are directed by volunteer leaders drawn from the church sponsoring the club. Club activities are stimulated by competitive programs. During the course of the year, all-day and over-night truck hikes are taken by the various groups. One of the city trucks is used, with benches for transporting the various groups. In this way the boys and girls are given an opportunity to spend some time in the open.

A broad municipal athletic program is conducted. During the past year 68 basket-ball teams, 48 baseball teams, and 16 soccer teams were competing in organized leagues. Boys and girls of all public and parochial schools play their league games between 4:00 and 6:00 P. M., and the adult league games are played from 6:00 to 9:30 P. M. The athletic program includes all sports in which active interest is shown.

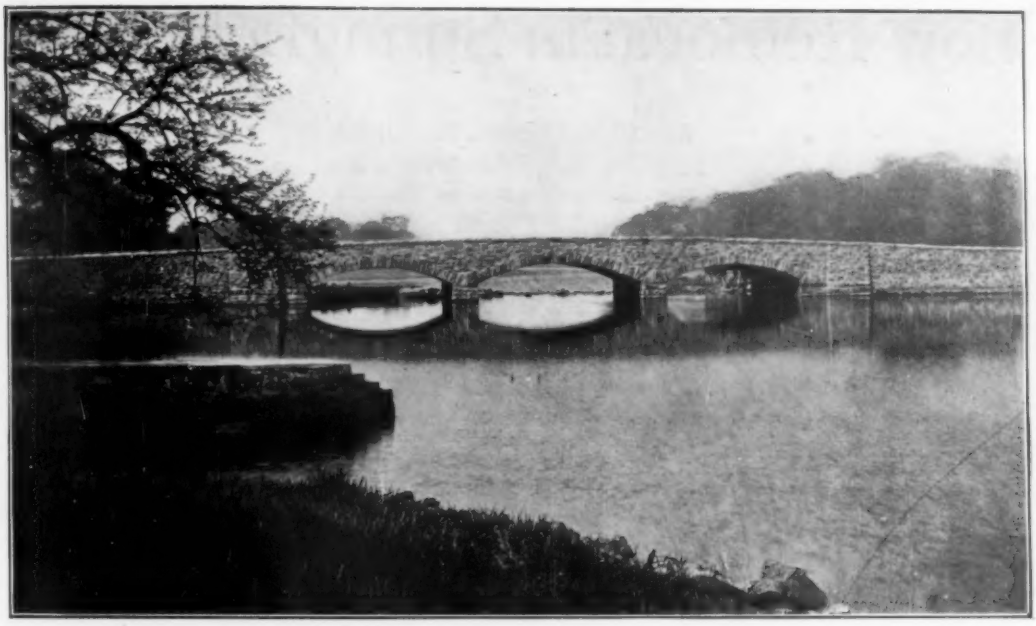
The swimming pool at the city high school is available to everybody in the community. Large groups respond to this opportunity, with the interest especially strong on the part of the women. The pool is kept open every day during the summer months. Special swimming instruction is given to all the boys and girls in the city. A lifeguard is maintained on the beach of Lake Michigan during the bathing season.

The Department sponsors a community chorus of over sixty young women, which renders programs on appropriate occasions throughout the year. This group has made three radio broadcasts during the year and put on a special program for Music Week. The chorus also acts as a unit around which many social activities, such as parties and dances, are built. A men's chorus of forty-five voices is also sponsored by this Department and has much the same program as the women's chorus.

A Great Variety of Interests

The many community programs that are given during the course of the year cater to the various interests of the people. A municipal Father and Son banquet is held annually. Hallowe'en parties are put on for boys and girls, and consequently objectionable Hallowe'en pranks are a thing of the past. There are special holiday programs for the general public, and also for some of the city institutions. Many tournaments and contests are held throughout the year. The Department stands ready to supply any recreational activity demanded, provided that the activity is wholesome and that a sizable group is interested. Usually the Department initiates the activity and stimulates the interest. The general policy of the commission is that all adult activities should be self-supporting. However, iron-clad regulations are no part of a recreation-building plan, and this rule is waived when the commission feels that a new activity needs some help in order to establish itself properly in the community.

That the recreation program has proved acceptable to the people is assured by their plans for new facilities. A $200,000 Municipal Recreation Building is being built at the present time. This building is a gift, and the community was more than willing to assume the cost of its operation. J. E. Hamilton, of Two Rivers, is the donor; Childs and Smith, of Chicago, the architects. The structure is located in the civic center area and is of grey-white Lannon stone with six per cent of the stone in orange and yellow in smooth face. It has been designed to present a homelike and inviting appearance. Two main entrances lead to the lounge, a room 20 by 65 feet, which will be wainscoted throughout in Colonial fashion, in knotty white pine and furnished to harmonize, with a large Colonial fireplace facing the entrance. A combined auditorium and gymnasium, with a large stage, is on the same floor level. The stage is equipped for productions by professional companies. There is a fireproof booth for motion picture projection purposes. On the ground floor, which is about four feet below grade, will be bowling-alleys with spectator space; a billiard room; a lobby equipped with a refreshment counter; a large banquet room with kitchen, serving room, and check room adjoining; and a hand-ball court. In the rear, with direct outside entrances and communicating with the stage and gymnasium above, are lockers and showers for men and women. The floor above the lobby has three club rooms, and also provides exits from the balcony of the auditorium. The third floor space is available for a number of uses. A new elementary school to be built this summer will include a well-planned recreation center. The city of Two Rivers is an industrial community and is operated under a council-manager form of government.



The Bridge That Links the Landscape Beauties on Both Sides of Goodwives River

By SIMON W. COOPER
SELECTMAN, DARIEN, CONN.

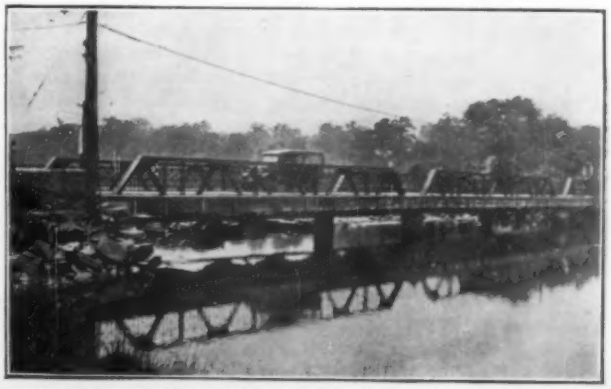
MUNICIPAL enterprise takes many forms these days, and in most communities there is a distinct trend toward the artistic in public buildings, bridges and similar structures. Thus it was that when the town of Darien, Conn., found it necessary to replace the old iron bridge spaning Goodwives River, Noroton, it was determined to substitute a stone bridge that not only would endure for all time, but would be artistic in design.

Authority to expend a sum not to exceed $75,000 was given to the Department of Highways and Bridges, of which Walter A. Bates is the head, and a committee of substantial and public-spirited citizens was named to cooperate with the Superintendent. Glenn B. Woodruff, a resident engineer, was engaged to prepare plans, and the result is a bridge that is not merely substantial, but also attractive to the eye—one that has a real appeal to lovers of the beautiful. It is 120 feet in length from approach to approach, and the roadway is 20 feet in width, with a 5-foot sidewalk on each side. The bridge is constructed of native stone, obtained from a quarry in Westchester County, N. Y., with concrete piers. There are three spans. Electric lights placed in alcoves, glass-enclosed, just above the surface of the roadway on either side, illuminate the path of drivers and pedestrians.

The north end of the bridge terminates almost in front of the historic Gorham homestead, more than a century old, and one of the landmarks of Fairfield County. The south end links Bell Avenue and the Pear Tree Point Road, the latter leading to the public bathing beach on the shore of Long Island Sound and to the summer homes of a number of wealthy people, all owning beautiful estates. The section below the bridge is populated almost entirely by large taxpayers whose properties are all kept in the pink of condition, and is one of unusual natural beauty, commanding extended views over the Sound and including a number of very beautiful developments. It was with the idea of harmonizing the bridge with its surroundings that the artistic design was selected. It would have been possible to construct a much less attractive bridge—perhaps at a smaller cost—but the local public felt that, serving as the gateway to a section of rare natural beauty, it should be of a design commensurate therewith. The result is most gratifying, as the accompanying illustration testifies.

There have been three bridges over Goodwives River since the township of Darien was set apart from Stamford in 1820. The first was built in 1830, at a cost, according to the old town records, of $150. It was, no doubt, like "the rude bridge that arched the flood" of which Emerson wrote in his immortal poem. It was probably crudely constructed of native timber and by labor that did not cost what is paid today.

In 1895 the steel bridge that has just been replaced was built at an approximate cost of $20,000. It served its purpose well for nearly a half-century; but erosion finally rendered it dangerous. In its place now stands one of the most artistic structures in all New England.



THIS STEEL BRIDGE AT DARIEN, CONN., WAS REPLACED BY THE ONE OF STONE SHOWN AT THE TOP OF THE PAGE

Snow Removal in Springfield, Mass.

By CORNELIUS W. PHILLIPS
ENGINEER IN CHARGE OF SNOW REMOVAL, DEPARTMENT OF STREETS AND ENGINEERING

IN the work of removing snow from the streets, many difficulties have to be confronted, and various devices have been offered for effective, economical removal. Consideration must be given to every angle of the work, such as weather conditions, methods of removal and disposal, vehicular and motor traffic, street railway and bus lines, and business occupancy.

With each year, the taxpayer expects, and needs, more and better service and greater conveniences in the use of his streets; and, as he is willing to pay for this service and convenience, it is the duty of the officials in charge of work of this nature to see that the best possible service is obtained. Springfield has gained valuable knowledge in this work in the last five years and has carried out the following program:

Organization

During the winters of 1924-1925-1926-1927-1928, Springfield spent $590,308.07 for snow plowing and snow removal. As the city has 200 miles of public streets, every mile of which is plowed during each storm, it is evident that proper organization is the most essential factor in the effective and economical removal of snow.

The first procedure in the fall of each year is the preparation of a snow map, clearly defining each snow-plowing district and the location of each snow-disposal point. This snow map is divided into 28 routes or districts. As every public street is plowed, no matter how small, or where it is located in the city, it necessitates considerable work each year in the revision of the snow-plowing map, to bring it up to date. After a summer's work of new street construction, many new streets have to be added to the routes.

Six inspectors, who are on duty during snow-plowing operations, are held responsible for the execution of the plowing in their respective districts. The driver of each plow, when he leaves the garage to start plowing, is supplied with a route card, designating the streets to be plowed and the exact order in which they are to be plowed.

As soon as plowing operations have progressed to the point where snow loaders can be used, they are sent into designated districts, accompanied by trucks for loading purposes. A map designates all the snow-disposal points. When the foreman in charge of a snow-removal gang is sent to remove snow in a certain district, it is his duty to acquaint himself with the nearest snow-disposal point, in order that there may be no delay in the removal operations.

Equipment

The city of Springfield has endeavored to obtain the type of equipment best suited for its individual use. It has therefore purchased equipment which may also be used for work other than snow removal, so that it may be considered a year-round investment. We have, at the present time, 53 blade type snowplows, one "V" type, with wings 4 feet long, one heavy-duty "V" type plow, two light-duty "V" type plows, and four tractors equipped with rotary brooms for sidewalk cleaning. The heavy-duty plows are used on 5-ton tractors.

The equipment for snow removal consists of three snow loaders with belt conveyors, having a digging width of 6 feet; also four other loaders of different types. Four to five blade type plows are kept in reserve, at the garage, ready to be sent to any snow-plowing district in case of a serious breakdown. Preliminary to the snow season, all the equipment is carefully gone over and put in first-class operating condition, so as to be ready at a moment's notice.

Labor

For the greater percentage of its labor, the city depends on a so-called "floating element" which seems accustomed to apply for this class of work, in large numbers during snowstorms. Their names are entered on the payroll, and they are given an emergency check. The foreman then takes them out in squads of twenty or twenty-five, to the point assigned to him for work, and during the day a time-keeper checks each man employed. The men are paid at the rate of 56 cents an hour, and at the cessation of work are paid off by the City Treasurer.

A list of foremen for snow-removal work is made out in advance of the snow season, and these men are instructed to report at the City Yard in case of a snowstorm of any magnitude. The men are not only selected for their fitness for this class of work, and their physical ability to stand long hours, but are also selected from positions that will suffer least by their absence from normal duties.

Methods of Snow Handling

Disposal methods play an important part in the economical removal of snow, as well as presenting their own problems. In Springfield, the utilization of manholes on the Memorial and North End Bridges, and the construction of two snow tipples, along with the many sewer manholes throughout the city, affords the most effective method of disposal. The construction of the two snow tipples greatly relieved the situation in Springfield, owing to the fact that the disposal of snow is accelerated by a flow of water.

Special trucks are also sent out to remove the snow from in front of all firestations and churches, and wherever a funeral is being held. Whereas there was formerly considerable delay in the removal of snow in the business section during the daytime owing to automobile parking, now men are sent out to erect barricades along the districts where snow is to be removed, to prevent parking. As these sections are cleaned, the barricades are continually being moved ahead, and with the fifteen-minute parking system in effect in the business zone, there is very little trouble in the removal of snow.

From the first snowfall, the snow organization and equipment are continuously working. We are constantly looking for ways to improve the service and to cut down costs. We have learned by experience that it is much easier, and more practical in every way, to fight a storm when it commences, rather than to wait until it is over, when the accumulation of snow is too deep to be easily handled. We have also learned that, regardless of how complete the snow-plowing and snow-removal equipment may be, without proper organization and preparation satisfactory results are not obtained, and large amounts of money are unnecessarily expended.

Fighting a Blizzard in a Large City

This dramatic story is told in the 1930 Municipal Index, which contains also other valuable material on snow removal. See pages 288-297 of that volume.

Putting the Water-Supply of Concord to Rights

By
MAJOR PRESON P. PHILLIPS
Member, Am. Soc. C. E.
Designing Engineer,
Gilbert C. White Co.,
Durham, N. C.

THE city of Concord, N. C., is the county-seat of Cabarrus County and is located about 22 miles north of Charlotte. It has quite a historical background, as many of the battles of the Civil War were fought in and around it. The present population of this city is around 15,000 and its principal industries are cotton mills, bleaching plants, machine shops and woodworking plants, most of which require a large amount of water.

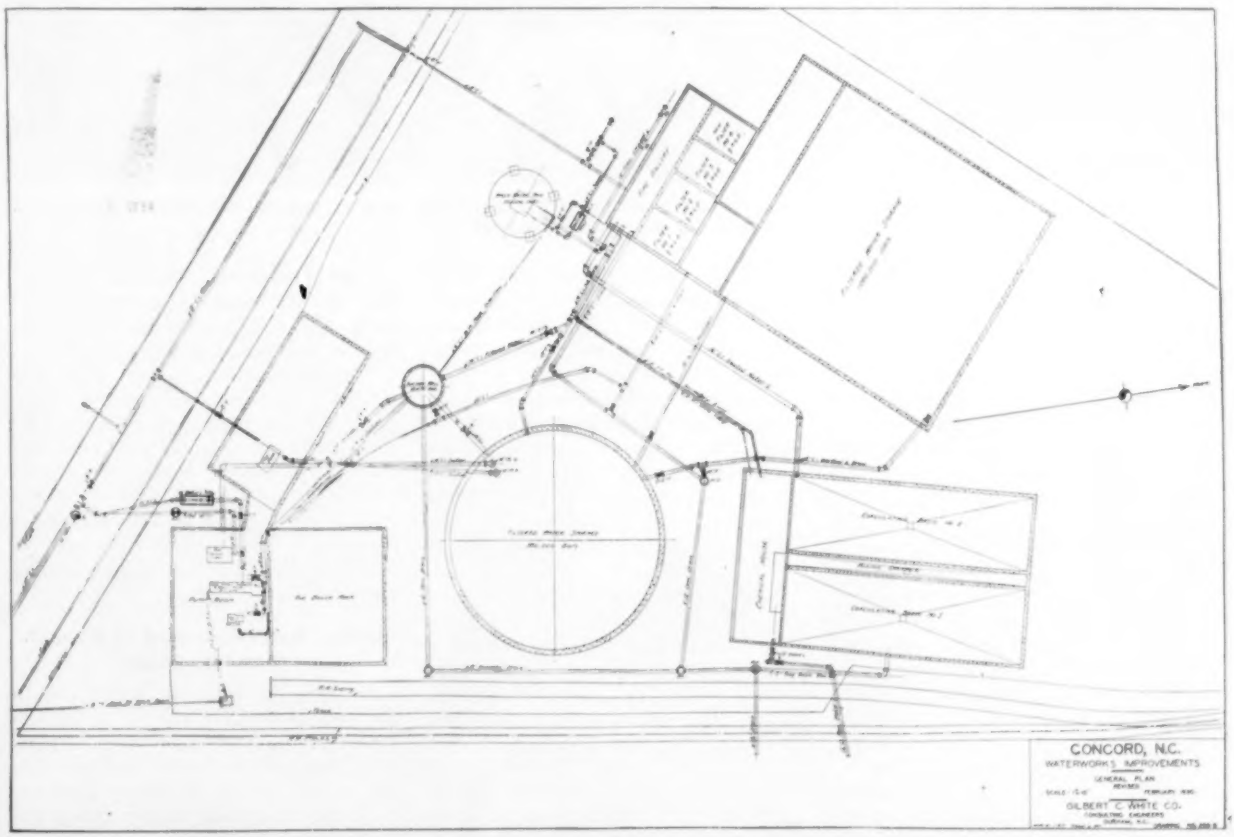
The exact date of the original waterworks at Concord is not known, but up to the year 1900 the water was obtained from wells, and the franchise for supplying the city with water was owned by a man named Fetzer. In 1900 the Board of Water and Light Commissioners was formed, with power to sell water and light, to contract and to be contracted with, and to buy and sell real estate. The Board at once purchased the franchise for supplying the city with water.

The population of the city at this time was approximately 2,500. It was found that the water-supply from the wells was not adequate, and the city dug another well, built a circular brick storage reservoir 17 feet deep having a capacity of 380,000 gallons, and had built a steel standpipe near the center of town 110 feet high, with a capacity of 150,000 gallons. The water was pumped from the deep wells to the brick reservoir and from there to the standpipe for distribution, without treatment. Shortly after purchasing the water franchise, the city also purchased from a man named Cannon the franchise for supplying the city with light and power, and a power-plant was built at the site of the water-works. This power-plant was later abondoned, the city finding it more economical to buy its power and then distribute it.

Additional Construction in 1907 and 1925

In 1907, on account of the growth of the city and its industries, it was found that the wells would not furnish an adequate supply of water, and surveys and studies were made to determine the best source of water-supply for the city. It was decided to abandon the wells and use water from Cold Water Creek at a point about 2½ miles from the city and about 82 feet below the city in elevation. An intake and pumping-station were built at this point, and a 12-inch cast iron pipe line was run to the filter plant site. On this site was built a settling basin to hold 1,000,000 gallons, and two filter tubs each having a capacity of 500,000 gallons per day. About 80 feet ahead of the entrance of the raw-water line into the settling basin this line was tapped for soda treatment, and a small mixing chamber was built in one corner of the settling basin, into which alum was fed. Alum was also suspended in bags around the walls of this basin, since there were no division walls to control the flow of the water.

The water was very muddy at certain seasons of the year, but with careful operation a good effluent was obtained from the filters. For reasons that are unknown, but probably because of the terrain at the site, the filters were built with their flow line at an elevation 9 feet below that of the settling basin, the



GENERAL PLAN AND LAYOUT OF THE CONCORD, N. C., WATER-WORKS

water entering the filters being controlled by a float valve. A small chemical house with solution tanks was built over one corner of the settling basin. Filters were washed direct from the main to the standpipe once in 48 hours, and it required about 5 per cent of the filtered water for washing. This filter plant, with a few changes found necessary for better operation, served the city until 1920, when an additional filter having a capacity of 500,000 gallons per days was added.

The year 1925 was a very dry year and there was a serious shortage of water, due to the fact that Cold Water Creek became nearly dry. It was necessary to curtail large users, to repump from the old abandoned wells, and to use other expedients to keep on hand enough water for fire-fighting purposes. Consulting engineers were called in and decided that the best way to increase the raw-water supply was to build a storage dam on Chambers Branch of Cold Water Creek at a point about 3¾ miles above the river pumping-station, and in times of drouth to allow the water to flow from this reservoir to the pumping-station in the stream-bed.

A suitable site was found and an earth dam was built. This dam was 500 feet long with the maximum height of 32 feet, the width at the top 10 feet, and the maximum width at the bottom of 175 feet. The downstream slope was made 3 to 1 and sodded, the upstream slope was made 2½ to 1 and paved with a 6-inch concrete slab. The area covered by the impounded water is 97 acres, and the drainage area is 5 square miles. The dam as built impounds 343,000,000 gallons, which will allow a sustained draft of 2,000,000 gallons per day for several months. An intake shaft was built at the upstream toe of the dam and connected to the top of the dam by a bridge. This shaft contains a 30-inch blow-off valve and three 18-inch intake valves at different elevations.

In the construction of this dam the contractor was required to remove all soil and sand down to approved material for the full width and length of the dam. In places there was found about three feet of sand over several feet of a gumbo formation which it was very difficult to remove. A 12-inch toe wall connecting to the upstream paving was carried down to hard, firm material, and the dam was built with a core wall of clay. The material for the dam was placed in 6-inch layers, each layer being sprinkled, harrowed and thoroughly rolled in the direction of the embankment before the next layer was placed.

Before placing pipes through the dam it was built up to an elevation of approximately 2 feet above the top of the pipes; trenches were then cut through this fill, and cut-off walls 18 inches thick and 15 feet on center were built around all pipes, extending 2 feet or more on all sides of the pipes. The trenches were then backfilled and wet-puddled before the dam was carried on up.

The dam was built to lines one foot or more in excess of the finished width, the slopes then being cut back to finished lines before paving was placed. This paving was divided into 25-foot strips by asphalt expansion joints. To date, no leakage has been detected through the dam at any point.

A spillway, entirely in cut, and paved with concrete, was provided at one end of the dam. This spillway was paved for a distance of only 65 feet from the top of the dam, with the idea that the flow of water over it would be controlled by use of the blow-off line so that it would not be excessive. During a heavy night rain the water rose very quickly and washed a bad gully from the apron of the spillway to the bed of the creek. This, however, did no damage to the dam, and the gully was shaped up and paved down to the creek. Provisions were made for the use of flashboards on the spillway in order to raise the elevation of the pond about 12 inches for the purpose of controlling growths and mosquitoes.

Anti-Mosquito Precautions

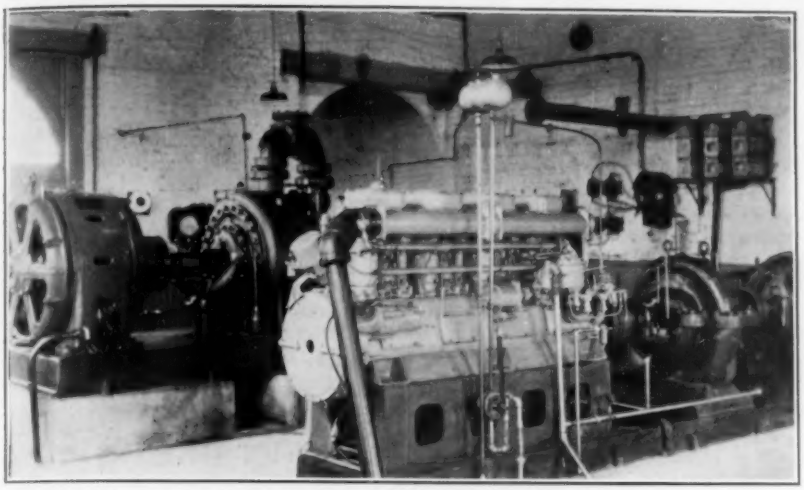
As soon as the new dam was built and the pond started filling, it was stocked with Gambusia for keeping the pond clear of mosquitoes. Later the pond was stocked with trout, bass and other game fish, and it is now planned to allow the public to fish from boats under the usual restrictions. Periodic inspections are made of the entire drainage area, and the residents on this area are cooperating in every way possible to make and keep it sanitary. The cost of the dam and appurtenances was $46,240, and including land, changing of bridges, roads, etc., the total cost was $95,180. No bonds were issued for this work, but it has been paid for from current earnings of the water company.

EXTERIOR OF THE PLANT, SHOWING THE WASH-WATER TANK AT THE LEFT, THEN THE FILTER HOUSE AND THE 1,000,000-GALLON STORAGE RESERVOIR

The construction of the dam provided the city with an abundance of raw water for many years to come, but by 1928 the capacity of the pipe line from the river had been reached, and it was decided to increase the capacity of the filter plant and to provide additional filtered-water storage, to take care of those periods when the consumption of water was above normal.

Settling Basin Converted to Filtered-Water Reservoir

At first, consideration was given to the idea of dividing the old 1,000,000-gallon settling basin into several coagulating basins of reasonable size and adding a new mixing chamber; however, since this basin was higher above the filters than was desirable, and also since its capacity was greater than was neces-



THE OLD AND NEW PUMPS IN THE CONCORD PLANT, THE 1,500-G. P. M., 300-FOOT HEAD NEW WORTHINGTON PUMP BEING SHOWN AT THE RIGHT

sary for the number of filters, it was finally decided to cover the basin and to use it for storage of filtered water. This of course necessitated the pumping of the filtered water, but since the raw water would have had to be pumped to this elevation anyway, the pumping added nothing to the cost of operation. The old brick reservoir was also thoroughly cleaned out and covered for filtered-water storage, giving a total storage at the plant of 1,380,000 gallons.

In covering the reservoirs it was originally planned to use cast iron columns as being more convenient and perhaps cheaper. There were 30 columns altogether, and the contractor offered a reduction of $500, or more than $16 each, if allowed to use concrete columns, and concrete columns were used.

Except at times of maximum draft only enough water is pumped to the clear well to keep the water from becoming stale. A suction well was added, connected to both reservoirs, so that either reservoir may be emptied for cleaning, although provisions have also been made for pumping direct from one circular brick reservoir so that the suction well, too, may be cleaned.

New Mixing Chamber and Coagulating Basins

To replace the large settling basin that was converted into a storage reservoir, a new mixing chamber and two new coagulating basins were built, together with a two-story building, the lower floor of which is to be used for chemical and material storage; the second floor contains the new dry feed machines, of which there are three, used for soda, alum and secondary lime. The mixing chamber contains wooden baffles of the over and under type. Soda ash is applied just ahead of the first baffle, and alum between the fourth and fifth baffles. The influent to the mixing chamber is provided with a float valve and a venturi tube and indicator, in order that chemicals may be properly proportioned. The chemical storage room is located on a railroad siding and is equipped with a traveling hoist for handling the chemicals and other materials in bags and barrels.

The coagulating basins are each 24 x 80 x 12 feet deep, providing four hours' retention when operating at the rate of 2,000,000 gallons per day. The treated water as it enters from the mixing chamber is distributed by an influent weir and is taken off over an effluent weir. Provisions are made for taking either of the coagulating basins out of service for cleaning, etc., without interfering with the operation of the plant.

Increased Filter Area

One additional filter having a capacity of 500,000 gallons per day was built adjacent to the three old filters. The newest type of controller was provided for this filter, and old-type controllers were replaced with new controllers on the old filters. All filter valves are hand-operated. The effluent from the filters is chlorinated and treated with lime and then passes into the new suction well, from which it may feed to the small storage reservoir, and may be pumped to the large reservoir or to the standpipe.

Pumping Facilities Renovated

The old pumping equipment consisted of two motor-driven centrifugal pumps, each capable of pumping about 700 g.p.m. These were installed in 1909 and were still serviceable, and the city will continue to use them. The new pumping equipment added consisted of one small motor-driven pump handling 700 g.p.m. against a total head of 25 feet, to be used for lifting the water from the suction well to the large storage reservoir, and one centrifugal pump with a capacity of 1,500 g.p.m. against a head of 300 feet, direct-connected to a motor on one end and to a 200-h.p. Sterling engine on the other, to be used for service and fire purposes. The exhaust from this pump extends below the concrete floor, where it enters a steel pipe 16 inches in diameter and 15 feet long. From this pipe a 6-inch cast iron pipe extends to a manhole outside the building, and this drains to a catch-basin in the street.

In the old installation there was no method of measuring the water pumped except from the capacity of the pumps and the time they were run. A venturi tube was added on the discharge from the pumps, together with indicating and recording devices.

Wash-Water Tank

In order to get a more uniform wash

THE COAGULATING BASIN, MIXING CHAMBER AND CHEMICAL HOUSE OF THE NEW CONCORD, N. C., WATER-WORKS, WITH THE STACK OF THE ABANDONED POWER-PLANT A TTHE RIGHT

for the filters, a steel wash-water tank having a capacity of 50,000 gallons was added. This tank is filled from the force main through an automatic controlling altitude valve.

Costs and Summary of System

The total cost of the changes and additions to the filter plant was $58,150, which the city will again pay for from the earnings of the utility.

The water system as it now stands includes the following:

1. A dam impounding 343,000,000 gallons at an elevation 14 feet above the filters. This water, however, cannot be fed to the filters by gravity, because there is a ridge that is 60 feet higher than the dam between the dam and the filter plant and very close to the plant.
2. Intake, suction well, pump-house and pumps at the river with a maximum capacity of 2,000,000 gallons per day against a total head of 210 feet, which is the head that must be pumped against to deliver this quantity of water through a 12-inch pipe line to the city.
3. Mixing chamber, coagulating basins and filters, together with chemical feeding devices and other appurtenances, capable of handling 2,000,000 gallons per day.
4. One filtered-water reservoir with a capacity of 380,000 gallons, one with a capacity of 1,000,000 gallons, and a standpipe with a capacity of 150,000 gallons, or a total storage of 1,530,000 gallons.
5. Two old service pumps each having a capacity of approximately 700 g.p.m. against a head of 300 feet; one new service and fire pump having a capacity of 1,500 g.p.m. against a head of 300 feet; and one low-lift pump with a capacity of 700 g.p.m. against a head of 25 feet for filling the reservoir.
6. About 22 miles of distribution system.

Operation

In the operation of the plant much trouble has been experienced at the river pumping-station at certain seasons of the year due to the fact that silt and leaves are carried by the stream and are deposited in the intake. The cost of keeping the intake and suction well clean is around $150 per year, but since this is much less than would be the cost of satisfactory pumps or other methods, the city will continue to keep these clean by hand.

The amount of chemicals used varies rather widely owing to the change in the raw water; at certain seasons of the year it is very muddy for several days at a time. The addition of the large storage reservoir makes it possible to discontinue the pumping when the stream is very muddy, thus effecting a large saving in chemicals. Chemicals are used as follows: soda ash, from 25 to 100 pounds per day; alum, from 60 to 300 pounds per day; chlorine, from 3 to 4 pounds per day; and secondary lime, about 6 pounds per day.

The bases of all the dry feed machines are set at an elevation about 18 inches above the water-level in the filters, and the secondary lime in solution must travel through about 80 feet of 4-inch terra cotta pipe to its point of application. At first no vent was placed in this line, and trouble was experienced by the air and water pressure building up enough to force the mixture back into the dry feed machine. The addition of a vent corrected this, and there has been no further trouble.

The filter plant is operated in three 8-hour shifts, the filters themselves being operated long enough to fill the storage reservoirs. Each filter is washed on the average of about once in 24 hours, and it requires 14,000 gallons to do the washing.

Personnel

The consulting engineer on all the above work was The Gilbert C. White Co., of Durham, D. C.; the resident engineer, J. W. Pumphrey. The contractor was The McClelland Co., of Charlotte, N. C., and the work was done under L. A. Fisher, the Superintendent of Water and Light at Concord.

Justice for City and Owner in Condemnation Proceedings

"IN valuing real estate in condemnation, it is a matter of frequent occurrence to see the real-estate experts differ widely in their opinions concerning the valuation of different parcels of property," writes Edward A. Alexander of the New York Bar in a thoughtful article on condemnation methods and awards in the June issue of the *Real Estate Magazine*, published by the Real Estate Board of New York City.

"Yet responsible real estate boards, title companies, saving banks, trust companies and other similar business enterprises have developed speedy, workable and effective methods of real estate appraisal for such purposes as the issuance of bonds and mortgages, the division of estates, the insurance of titles, purchases, sales and leases. The experts employed by these business corporations, of course, do not agree as to the precise valuations of real estate, but their differences usually are a fraction of the discrepancies between the appraisals of opposing experts in condemnation proceedings, and they, also, require much less time.

"Quasi-public corporations, such as railroad and public utilities, which are vested by the state with the power of condemnation, have developed a method of appraising real estate, which enables them to purchase directly from the owners, in most instances, without litigation, and this indicates that the owners are satisfied to accept the offers of these corporations, and that the directors and stockholders of these enterprises do not consider the prices paid as excessive. In cases, however, where the public condemns property, it seems that frequently there is a great difference of opinion concerning valuations made by the so-called experts on either side of the litigation."

Mr. Alexander's suggestions include:

"1. The city charter might provide that the Comptroller be required to procure an independent appraisal made by the Real Estate Board of New York of each parcel of property which the city intends to acquire, and that this appraisal, together with the preliminary appraisals made by the city's own experts, be printed in the Board of Estimate calendar prior to official action on the matter in all cases where the city intends to purchase property privately.

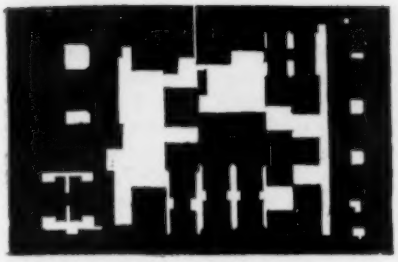
"2. When private purchase by the city is unsuccessful, the court having jurisdiction over the condemnation proceedings should be permitted, by law, to receive in evidence the Comptroller's appraisal and offer to buy at private purchase, and the valuation placed upon the property by the Real Estate Board, to check against the valuations testified to by the respective real estate experts for the owner and the Corporation Counsel. The court should also be required to employ an independent appraiser, such as the Real Estate Board or disinterested experts of any savings bank or title company of standing.

"3. If the city charter, in prescribing the legal notices in condemnation proceedings, were amended to require that the names of the experts for the Comptroller, Corporation Counsel, property owner, and the appointed independent appraiser, and their respective valuations per parcel, be printed side by side, and that brief digests of these notices be also reprinted in daily newspapers indicating the issue and page number of the *City Record* containing the complete notice, it would afford the public the basic facts on which an intelligent comparison might be made. . . . If all of these figures were published, the comparison of them would tend to arouse more public interest than pages of legal notices describing technical details of the proceedings. . . .

"4. The law should also be amended to provide that the foregoing figures of appraisals, with the names of the appraisers, be printed as a part of the legal notice setting forth the final awards.

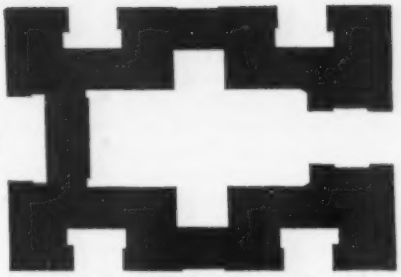
"5. If direct negotiations between the city and private owners are to be encouraged, the provision of the railroad condemnation law might be adopted in the city charter, charging the costs of litigation against the owner when the final award is less than the original offer made by the city to buy at private purchase."

These suggestions for reform are also included in the remedial program adopted by the Committee of Law and Justice of the New York Board of Trade, of which Mr. Alexander is a member.



EXCESSIVE PLOT COVERAGE OF TYPICAL BLOCK IN CONGESTED LOWER EAST SIDE DISTRICT OF NEW YORK CITY

Land Coverage and Its Relation to Housing Costs



PLOT COVERAGE OF THE AMALGAMATED DWELLINGS, RECENTLY CONSTRUCTED IN THE SAME NEIGHBORHOOD

THE doubtful wisdom of using a high percentage of coverage on land used for residential purposes is distinctly shown in the section on "Controllable Cost Variables in Housing Construction" in the recent Annual Report of the New York State Board of Housing.[1]

From the standpoint of cost, the use of land may be varied in two ways—in the percentage of coverage, and in the height of the building. Obviously, the higher the coverage and the higher the building, the lower the cost of land per unit of rentable space. The effect upon construction costs and upon rents of the changes in coverage and building heights is set forth in the accompanying tables, in which the costs are recorded for different land prices at one-dollar intervals from $1 to $10 per square foot, and the coverage percentages considered are between 70 and 50.

It appears, for instance, that for a six-story building on land costing $3 per square foot, the difference in cost between 70 per cent coverage and 50 per cent coverage amounts to only $57.14 per room having a floor area of 200 square feet. The additional rent levy required to carry the extra investment is but *37 cents per month*, and yet the crowding resulting from an increase in coverage of 20 per cent may well change the entire character of a project. Surely, 37 cents per room per month is a low price indeed to pay for the light and air afforded by the addition of 20 per cent of the plot to the open space surrounding a building. A decrease in coverage from 70 per cent to 50 per cent means an increase in vacant space of 67 per cent!

Cost of Foundation, Basement, Roof and Parapet

Like land, certain portions of the building form a fixed cost irrespective of the height of the building. For instance, the cost of the basement in the four-story non-fireproof building does not differ materially from that in a six-story building of the same type of construction. Since in a six-story structure the cost of the basement is divided by 6 rather than 4, the cost per unit floor area is correspondingly lower. In this respect the roof and parapet are similar to the basement.

In determining the height of a building to be placed on a given site, one must therefore consider the cost of foundation, basement, roof and parapet, as well as that of the land, as being in a sense overhead costs to be charged uniformly to the rentable space of the building.

The differences in fixed costs for buildings of different heights are significant. We find that on $3 land, with a coverage of 50 per cent, the fixed cost per square foot of floor area in a four-story building is $2.19, but in a six-story building it is only $1.46. It would seem, therefore, that if there were no counterbalancing factors, the saving possible on $3 land between a four-story and a six-story building amounts to about $0.73 per square foot of floor area, or $146 per room having an area of 200 square feet gross. In terms of rents this saving is equivalent to about $0.94 per room per month. The corresponding rent differential between a four-story and a five-story structure is only $0.56 per room per month. On $5 land the saving between a four-story and a six-story building is about $1.37 per room per month when the coverage is 50 per cent, and about $1.19 when the coverage is 60 per cent. These computations are based on the carrying costs of land and buildings obtaining in projects operated under the State Housing Law. For commercial enterprises, the carrying costs would be higher, and consequently the rent differentials would also be higher than those shown in the tables.

The foregoing comparisons are for non-elevator buildings. The report of the State Board of Housing discusses

INCREASE IN MONTHLY RENT PER ROOM* RESULTING FROM DECREASE IN COVERAGE FOR BUILDINGS OF DIFFERENT HEIGHTS ON LAND OF DIFFERENT COSTS

Price of Land per Square Foot	Increase in Monthly Rent† if Coverage is Reduced								
	For Four-Story Buildings			For Five-Story Buildings			For Six-Story Buildings		
	From 70% to 50%	From 60% to 50%	From 55% to 50%	From 70% to 50%	From 60% to 50%	From 55% to 50%	From 70% to 50%	From 60% to 50%	From 55% to 50%
$1.00	$0.19	$0.11	$0.06	$0.15	$0.09	$0.05	$0.13	$0.07	$0.04
2.00	.37	.22	.12	.30	.17	.10	.25	.15	.08
3.00	.56	.33	.18	.45	.26	.14	.37	.22	.12
4.00	.75	.44	.24	.60	.35	.19	.50	.29	.16
5.00	.93	.55	.30	.75	.44	.24	.62	.36	.20
6.00	1.12	.65	.36	.90	.52	.29	.75	.44	.24
7.00	1.31	.76	.42	1.05	.61	.33	.87	.51	.28
8.00	1.49	.87	.48	1.20	.70	.38	1.00	.58	.32
9.00	1.68	.98	.53	1.35	.79	.43	1.12	.65	.36
10.00	1.87	1.09	.59	1.49	.87	.48	1.25	.73	.40

* Averaging 200 square feet gross floor area exclusive of basement. † Interest of 5.4 per cent and taxes of 2.45 per cent on added cost of land.

ESTIMATED DECREASE IN MONTHLY RENT PER ROOM† RESULTING FROM INCREASING THE NUMBER OF STORIES* IN NON-FIREPROOF BUILDINGS ERECTED ON LAND OF DIFFERENT PRICES

Cost of Land Per Square Foot	Decrease in Monthly Rentals‡ if Number of Stories is Increased					
	From Four to Five		From Five to Six		From Four to Six	
	60% Coverage	50% Coverage	60% Coverage	50% Coverage	60% Coverage	50% Coverage
$1.00	$0.28	$0.30	$0.19	$0.20	$0.47	$0.50
2.00	.39	.43	.26	.29	.65	.72
3.00	.50	.56	.33	.38	.83	.94
4.00	.61	.69	.40	.46	1.01	1.15
5.00	.71	.82	.48	.55	1.19	1.37
6.00	.82	.95	.55	.64	1.37	1.59
7.00	.93	1.09	.62	.72	1.55	1.81
8.00	1.04	1.22	.70	.81	1.74	2.03
9.00	1.15	1.35	.77	.90	1.92	2.25
10.00	1.26	1.48	.84	.99	2.10	2.47

* Added costs incident to increased height of building, such as of elevators, etc., not accounted for. † Averaging 200 square feet gross floor area. ‡ Interest of 5.4 per cent and taxes of 2.45 per cent on added cost of land; interest of 5.4 per cent and depreciation of 2 per cent on cost of building.

[1] See notice in department of Municipal and Civic Publications, page 167, July issue.

also the comparative economies of the six-story elevator house and the four-story walk-up. Tables are given in the report from which it appears that only on land costing $5 or more do the savings exceed the added costs when only 100 rooms are allowed per elevator. However, when 130 rooms are allowed per elevator, the cost of elevator service is exceeded by the building-height savings on land priced as low as $3 per square foot; and when we allow 220 rooms per elevator, the savings and the extra costs are counterbalanced on $2 land. In other words, the lower the land cost, the more rooms it is necessary to serve by an elevator in order to have rentals in a six-story elevator structure as low as in a four-story walk-up of similar construction and size of rooms. One table in the report shows this gradation for six-story projects in which the average size of rentable rooms is 200 square feet gross floor area. For projects in which more floor area per room is used, the advantage of the six-story elevator building over the four-story walk-up is extended to land of lower costs and to fewer rooms per elevator.

Some Observations on Automobile Headlights

By
CLARENCE P. TAYLOR
SOMETIME ALBERT RUSSEL ERSKINE FELLOW,
HARVARD UNIVERSITY

THE earliest automobiles were without lights of any kind. Then, as automotive transportation became more dependable and people ventured to drive at night, some sort of light was needed, and for this purpose the ordinary kerosene carriage lamp served. With higher speeds came the necessity for better illumination of the roadway ahead, and carbide and compressed acetylene gas furnished the first successful light for this purpose. These have been almost entirely displaced by the electric lamp.

Headlights and Accidents

Aside from the physical pain and nerve strain caused by continually meeting dazzling lights or driving with dim ones, there is a very real accident hazard in unsatisfactory headlights. Under ordinary conditions, about three automobiles out of a thousand drive without lights, three out of a hundred with only one light, and roughly ten per cent with dim or weak lights. The fact that only three vehicles out of a thousand operate without lights indicates that operators themselves are wary of this condition. Most of the violations of this sort are unintentional and should be dealt with intelligently, yet with due regard for the seriousness of the offense.

Sometimes a driver forgets to turn on his lights, particularly in well-lighted districts. While the law holds the driver as responsible for the violation, the traffic officer had better use discretion; if he does not, the court or jury is likely to. Moreover, punishment of each individual violator is a slow and doubtful method of improving the memory of the general driving public. The simple reminder, "Lights," will go a long way.

Effects of Automobile Design and Road Surfaces

On certain makes of automobiles the springs deflect when the car is pulling heavily, as when climbing a grade or accelerating. Such deflections may cause an upward tilt of the main beam from one-quarter to one-half degree. When passing over a hill, there are times when the beam does not fall upon the road surface; and on driving down grade into a valley, there are times when the beam strikes the road surface at a short distance from the car, not giving as much as 200 feet of illumination. Crowned roads tend to raise the left headlamp, thus throwing the beam into the vision of the approaching driver. Curves also tend to defeat the principles of the fixed beam, for the light does not follow a crooked road. If the curves are banked, there is a possibility that approaching drivers on an "S" curve may throw a dazzling beam into each other's eyes.

The type of pavement or road surface has some effect upon glare, although usually this is not of much consequence. Also, some pavements "take" illumination better than others, and in this way the ability of a driver to see the roadway is somewhat affected. Narrow dirt roads with ditches at the sides and sharp turns need a wide-spreading headlight, while a wide, well-paved road with easy turns and wide shoulders is apt to be used at higher speed and therefore requires headlights that can throw a concentrated beam far down the roadway.

Clean snow decreases the need for beams of great intensity, for dark objects are easily discernible against that light background, and the whiteness of snow-covered objects at the side of the road aids the driver. Like wet pavement, however, the reflection from snow, especially if icy, causes a blinding glare.

From year to year the plane of new automobiles has been lowered, with the result that the eye level of the driver has been approaching the level of the headlights—a condition which obviously brings about more opportunity for glare. Moreover, with increased speeds there has come the necessity for seeing farther ahead.

Limitations of the Fixed-Beam System

The fixed-beam or American standard system (the plan adopted by most of the states that have legislated on the subject) is open to criticism. It is a compromise between two conflicting requirements, namely, that there should be sufficient illumination ahead for safe driving, and that there should be no glare. In addition, specifications in the fixed-beam system are based on observations of individuals whose needs varied from 10 to 1. The motorist would prefer to make his own distribution of light, but with the fixed-beam system he has no choice.

A large majority of the automobiles operated throughout the United States and Canada are now under the American standard system; and for this reason the system can not be easily cast aside, even if it were desirable to do so. However, the United States Bureau of Standards seems to express the proper attitude in this respect when it says:

> "The Bureau itself has taken the position that standard specifications represent the best solution of the problem at the present time available, and that until some one can bring forward a better solution, it is of no advantage to make public criticism of the present one. The Bureau's efforts have, therefore, been directed toward obtaining a thorough trial for the present system of regulation."

Dimming the Headlights

Insufficient illumination is as much a source of accidents as is glare; hence it may be concluded here that, barring interference with the vision of approaching operators, a driver should be permitted as much light as he wants, including auxiliary lights if he wishes to use them. Efforts to require operators to dim their illumination when passing another vehicle have proved a feeble reliance. An excellent alternative might be to require an electrical switch of the button type for turning on the auxiliary lights mounted on the floor so that a driver would have to keep the button depressed with his foot or they would automatically go out. A driver who would fail to lift his foot to aid an approaching operator would deserve punishment. Such a scheme may prove an important supplement to the present fixed-beam system.

EDITOR'S NOTE.—The foregoing article is a portion of the "Traffic Officer's Manual," by Clarence P. Taylor, edited by Miller McClintock, Director, The Albert Russel Erskine Bureau for Street Traffic Research, Harvard University. The book is published by the National Safety Council, 20 North Wacker Drive, Chicago, Ill.

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A Standardized County Highway Financing Plan

A Helpful Average Case from an Agricultural County with Small Income and Small Population

THE General Committee on Highway Finance of the American Road Builders' Association has prepared a report on a typical county highway system which should be very helpful to county highway commissioners and engineers in determining the proper methods of attacking the financing of a construction and maintenance program. It presents the following example of financing an agricultural county with small income and small population.

An Actual County Financing Plan

In a survey recently made in this county, which is typical of hundreds of others, it was found that the county was maintaining a highway system which included 445 miles in its system. A traffic and economic survey was made and, as a result, the highway system was found to include excess mileage amounting to 22 per cent of the total. The survey showed that with some changes in location, 345 miles would accommodate present traffic requirements and those of the future with possible surface type development. As a result of this new planning, the county system is separated into two classifications, which consist of 118 miles of primary highways and 185 miles of secondary highways. There are 42 miles in the present county system which may eventually be added to the existing state system of 55 miles.

There has been very little construction of a permanent nature done on the system, and much of it is impossible in wet weather. A portion of the primary system, however, is satisfactorily located, some drainage structures have been built, and proposed work will consist of widening, straightening, and the completion of drainage structure.

The county has a growing population and is estimated at 15,000 in 1930. That there is a necessity for passable highways is evidenced by the fact that one-room schoolhouses furnish 60 per cent of the educational facilities.

Sources of Highway Funds

Funds for highways are secured through a property tax and a share in the state gas tax. The county has an area of 220,800 acres and had an assessed valuation of $5,267,342 in 1928.

The total funds for highways in 1929 will amount to approximately $36,000, which is the total of gas tax amounting to $18,000 and levies on real estate amounting to $18,000. The highway tax rate in the six districts in the county varies from $0.20 to hundred to $0.40 a hundred. There is no bonded indebtedness for highways, and a total debt of $81,000 in school bonds against the various districts.

The financing system planned for this county is based on predicted extension of income taken over a period of years. An average annual increase of $2,000 may be anticipated from gas tax. Taxable land values are estimated to double by the year 1960. This would appear to be a conservative estimate in a county with increasing population and a system of highways.

In the financing of the system, the object is to build highways to accommodate the greatest population with the least mileage. The contemplated plan gives all the assurance possible that highway income over a period of years will be sufficient to meet fixed charges with necessary surplus for maintenance.

Bond Issue

A bond issue is planned, a twenty-year serial at 5 per cent, the total to amount to $500,000 to be expended in $100,000 units over a period of five years with a deferment period of five years for each unit. This is estimated to complete the primary system of 118 miles.

The highway tax rate necessary to finance this plan will reach its maximum in 1940 and will amount to $0.43, which is $0.03 higher than the maximum rate now in effect in the county. From 1940 to 1950 the rate steadily decreases, and this levy will be unnecessary after the latter year, the gas tax being sufficient to meet amortization and maintenance requirements.

The bonding plan as described herein may be changed to suit conditions, and it is probable that bonds may be retired before their maturity, thereby reducing the total cost. A shorter term serial would materially reduce the total cost but is not practical in this instance owing to the resulting increase in tax assessments to burdensome proportions. The sale of bonds will take place over a period of five years, giving the construction program opportunity to develop and new highways to react on transportation. A conservative program of this kind will not tend to upset the labor market; will keep engineering costs at a minimum and be conducive to the greatest degree of economy. Using current funds, it would take 15 years to complete the same program, assuming that revenues would show the same increase during the longer construction period as during the shorter one.

Bonding is the only method of financing by which this county can make necessary improvements in its highways, either at the present time or in the near future. The investment is unquestionably a sound one and is particularly desirable at this time on account of exceedingly low construction prices existing.

COUNTY FINANCING PLAN

$500,000—20 year serial bond issue at 5%. Issues sold annually in five $100,000 units

Year	Estimated Taxable Land Value	Maint. Cost	Bond Cost Int. & Prin.	Total Cost	Gas Tax	Total Balance	Estimated Road Tax
1930	6,000,000	30,000	5,000	35,000	20,000	15,000	.25
1935	7,000,000	30,000	30,000	60,000	35,000	25,000	.36
1940	8,000,000	35,700	46,250	82,000	47,500	34,500	.43
1945	9,000,000	35,000	40,000	75,000	57,500	17,500	.19
1950	10,000,000	34,250	33,750	68,000	65,000	3,000	.03
1955	11,000,000	38,500	22,500	61,000	70,000	9,000	...
1958	11,600,000	38,500	5,250	44,050	73,000	28,950	...

Note.—5-year deferment period for each issue.

Table d'Hote Parking

AN increasing number of authorities are emphasizing the fact that parking is a privilege and not a right. The proper use of streets is for the passage of vehicles, not their storage. The parking privilege is everywhere being curtailed, and may be in process of disappearing.

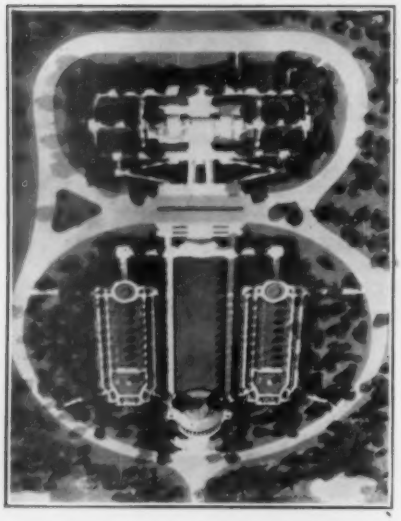
The merchants of Oakland, Calif., are solving their own problem. They have formed a cooperative, non-profit association which maintains five parking lots. A customer at any of the member stores or banks may present his parking tag for validation. This entitles him to free parking. The total cost of operating the parking grounds is divided and assessed among the members in proportion to their validations. They calculate that it costs 5 cents per car on the one-hour parking lots and close to 10 cents on two-hour lots.

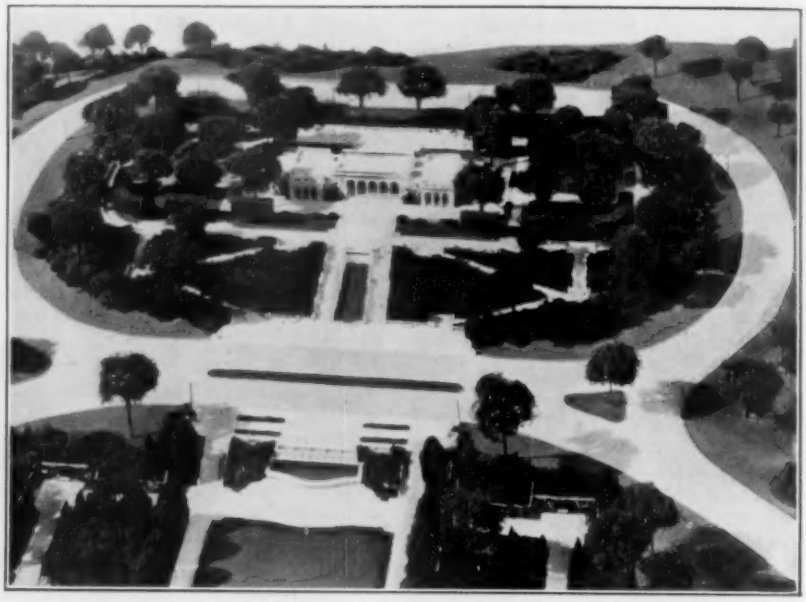
PICTURES AND PARAGRAPHS FROM NEAR AND FAR

LANDSCAPE PARK AREAS

In Cincinnati—

The shelter building shown at the right occupies the highest knoll in the 216-acre tract of Ault Park, Tusculum, and commands an unbroken view over wide areas of eastern Cincinnati. It was dedicated with appropriate ceremonies on July 4





The structure is the dominant note of interest in an elaborate formal scheme now being developed by the Cincinnati Park Board, a model of which is shown at the left. At the approach is a great stone colonnade, between the pillars of which fountains will be placed. This is set within a circular garden development composed chiefly of three formal panels. A broad double staircase leads to an upper level on the hillside and another pair at a still higher level flank a cascade waterfall and form the approach to the building. The falling water is floodlighted at night

Reservoir Park, Fort Wayne, Ind.

An airplane view which shows that a formally landscaped park need not be large to be effective. In the foreground is a fountain, and topping the knoll, a pavilion. The bandstand has been located beautifully and with recognition of the value of water as a sound-conducting medium

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Chicago Aerial Surveys

PUBLIC BUILDINGS OF USEFULNESS AND DISTINCTION

The Shedd Aquarium, Chicago, Ill.

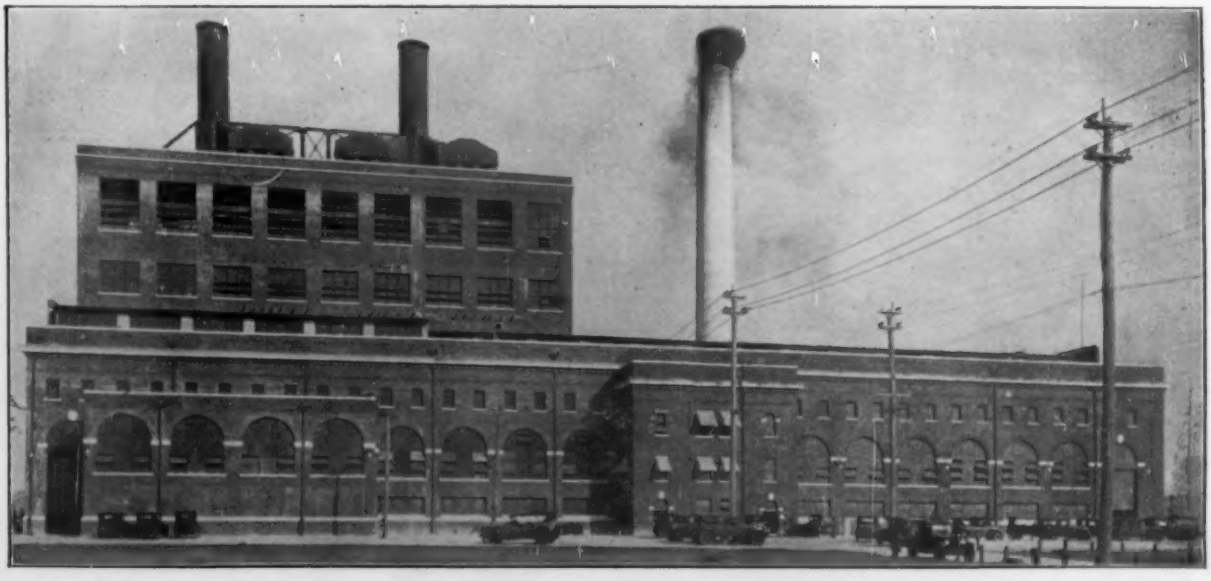
This new $3,000,000 structure, just opened to the public, is a pioneer in making fish feel at home. It provides water carefully "conditioned" the year round to meet requirements of the different species. Willis H. Carrier, Vice-President of the American Society of Heating and Ventilating Engineers, is responsible for the cooling equipment used in connection with the salt and fresh water circulation system

Main Building, New Hospital Group, Toledo, Ohio

The hospital plant, including three buildings, was completed at a cost of $2,500,000

Jacksonville's Municipal Power-Plant

(Below) The original structure was completed in 1895. The total municipal investment to December 1, 1929, including extensions and improvements, was $3,052,500. In 1929, the total output was 88,499,600 kwh. and the average kw. per barrel of oil was 350.13, according to O. Z. Tyler, Superintendent



"BREATHING SPACES" IN EUROPEAN CITIES

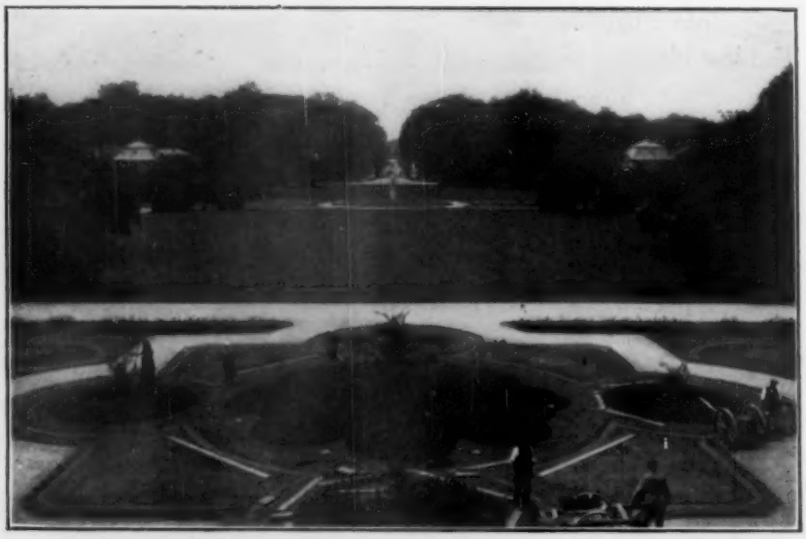
Spots worthy of a visit by American vacationists—particularly those public officials and civic-minded citizens interested in more and better opportunities for outdoor life at home

In Munich

This shimmering lagoon graces the English Gardens and is one of the favorite beauty-spots of that German city to American visitors

In Dresden

The Grand Park, has, like Central Park in New York City, a prominent mid-city location. Its formally landscaped lawns and its flower gardens are a source of constant enjoyment



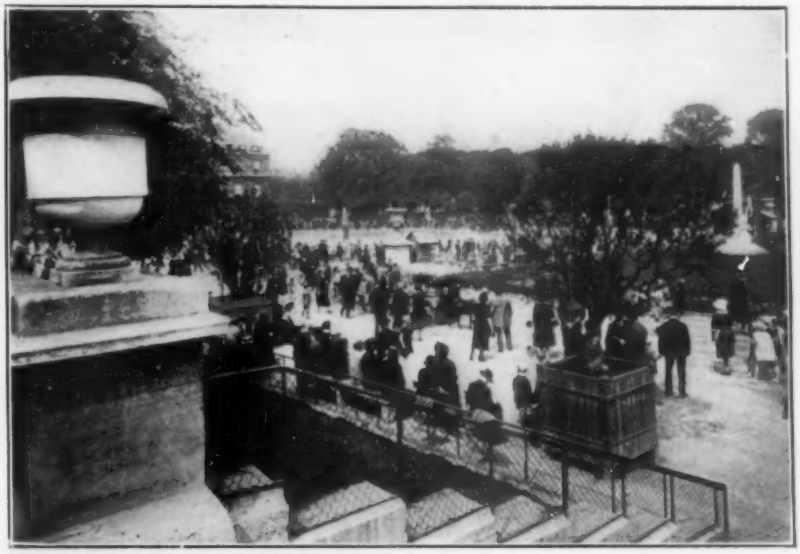
In Vienna

On Sundays and holidays, people flock by the thousands to the public park known as the Prater, which is a well-wooded tract of considerable extent

And in Paris of Course—

the Luxembourg Gardens

Here frequent concerts given by the best military bands of France are an established institution. Adjacent is the Louvre

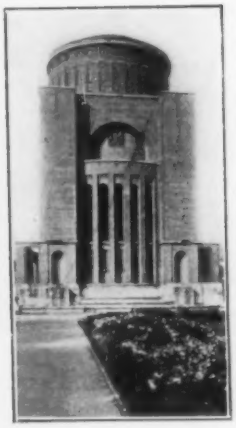


Photographs from George F. Paul

In Berlin

(Below) This is not a Fourth of July celebration, but a nightly scene from the Restaurant Garden of the Templehofer Field—said to be the world's largest airport. It is a highly popular amusement center. In front can be seen a glimpse of the Garden

German Railways Information Service



In Hamburg

This lofty water-tower, set in a landscaped area, is being converted into a planetarium and a municipal astronomical library

Diners Take to Mid-Street In Brussels

A. L. H. Street, Legal Editor of this magazine, found no novelty in sidewalk eating and drinking in European cities, even where only a narrow passage was left for pedestrians. He was, however, sufficiently impressed by outdoor dining in Brussels to return and take this picture, showing a sidewalk restaurant overflowing at least 25 feet into the street. It is on the Place Charles Rosier, the plaza in front of the Belgian capital's principal railway station, the Gare du Nord. Every seat was filled on his arrival

RAVINE PARK
An extensive stretch of natural woodland beauty in the heart of this planned community

Kohler: A Planned Village of Beauty and Neighborliness

By GEORGE L. GEIGER

TODAY, after a decade teeming with activity and abounding in sound, normal growth along predetermined lines, Kohler, Wis., has the double distinction of being one of the world's most beautiful built-to-plan communities, and one of the very few industrial villages that are thoroughly American in spirit and in government.

Here are modern, attractive American homes with every comfort and convenience, owned outright by the occupants. Here are plans looking a long way into the future for parks, playgrounds, athletic fields, schools and other buildings, and all public improvements. Here is a social life kept live and rich and broad by community effort.

Kohler is not a corporation town, though Governor Walter J. Kohler, President of the Kohler Co., has been largely responsible for its directed growth. It is an incorporated village and is operated along the same lines as any other village under Wisconsin laws.

"And what we see today is only a part of the finished picture," Governor Kohler asserted recently. "There is still a long way to go, although we can begin to visualize finished results. To carry on a development of this type requires that a people have vision. It requires faith and courage, and cooperation of a great many persons, because the future of this or any community depends upon the public spirit of the citizenry of coming generations."

Even in its infancy Kohler village had a number of admirable constructive minds, men who early grasped the opportunity for foresighted leadership in community building. These entered wholeheartedly into a directed study of the best that had been written on town planning, to be followed by a series of consultations with authorities on the subject—architects, landscape architects, town planners. Walter J. Kohler and Richard Philipp, F. A. I. A., Milwaukee architect, made a tour of the principal garden cities of Europe and America. This was followed by surveys and drafting-room work. Eventually, in 1916, the village plan went into effect, and since the close of the war it has been systematically carried out.

Preserving Scenic Charm

In plotting the development, the fullest advantage was taken of the beauties of the countryside. Streets, zones, and sections were laid out to conform to the graceful windings of the Sheboygan River and to the contours of the curving shoulder above the ravine. Ravine Park has become one of the most interesting spots in the village, the densely wooded valley having been left largely in its natural state—a principle of in-town land planning which is only recently gaining general currency. In its northern extremity is an open-air amphitheater where musical programs and other community events are held.

The public schools building is surrounded by a large community athletic field and recreation ground. The schools, from kindergarten to senior high school, are combined in a single model building

LOWEST IN THE SCALE
These cheapest of all the houses represent a high standard of attractiveness

LINCOLN CIRCLE
One of the cul-de-sac streets that lend intimate charm to the residential development

HIGH STREET
The tower of the general office, a Kohler landmark, is seen above the street trees

designed by Mr. Philipp to conform with the other architecture of the village.

The streets are all paved and ornamentally lighted. Some are straight, others conform to the natural contours of the land, and in some instances street location has been changed to preserve fine trees. Widths of roadways have been determined by anticipated future traffic requirements. Necessary poles are placed at the rear of lots; and all sewer, gas and water mains are laid before paving is done, to obviate the tearing-up of concrete or asphalt at some future date.

Economy of Home Building without Monotony of Design

The homes are for the most part unpretentious, but they are distinguished by an unusual architectural beauty and a charm which invariably excites praise. One hundred per cent of the residents live in houses built by the Kohler Improvement Co., a corporation organized for service and not for profit, and operated for the purpose of building modern, attractive homes economically. (By actual count there are today 369 of these in the village proper.) Architectural talent of a high order is employed. Materials are purchased in quantity. Large-scale building operations are under unified supervision. A sound and liberal financing plan is available through the Kohler Building and Loan Association, making outright home ownership not only possible, but easy.

A neighborhood harmony of architecture is developed, without sacrifice of the character of the individual home, and with no hint of monotony. There are pleasant variations in design, in materials, in position on the lot, and in landscape treatment. Picturesque settings enhance the beauty of the homes. Well-tended lawns, trees, shrubs, hedges, and flowers bear eloquent testimony to the fact that both the village and its citizens are good housekeepers. The same spirit of industry and home pride is evident in the back yards, many of which are bowers of flowers throughout the summer.

Some of the single workmen lodge in the American Club, a well-designed, attractively located building provided especially for them; and there are a few apartments over the shops in the single building that houses the stores, post office, Western Union office, and community Recreation Hall, but everybody else lives in model, tenant-ownership houses. (This excepts a few scattered farmhouses, some of them built before the plan was instituted.) There is no sordidness, no poverty. Photographs taken throughout the village would be as effective as those reproduced here, and would show that back yards are as attractively landscaped as those in front. Trash heaps, cinder piles and all unsightliness are taboo and unknown, as many visitors can testify. Moreover, there is neither roadhouse nor saloon (in fact, excepting the soda fountain at the village drug store, there is not even a soft-drink parlor) within the village limits. A former restaurant, called the Greenleaf Tavern, acquired during the

THE PUBLIC SCHOOLS BUILDING
A view from Ravine Park, which also includes a private home (right) and the office tower

A VIEW DOWN CHURCH STREET
The back yards of these and other Kohler homes are as beautiful as the ones shown

early days of the village, is now serving as the Kohler Woman's Building and as studios of the Kohler Conservatory of Music.

Development in recreation, music, education and social life in Kohler has kept pace steadily with the physical growth of the village. Thoroughly democratic organizations composed of volunteer members who elect their own officers provide broad facilities for study and recreation.

WORKINGMEN'S HOMES
These are also among the lowest cost houses in Kohler

Community Organization

Parent of a dozen active groups, each sponsoring a different athletic or social activity, is the Kohler Recreation Club, one of the largest and most unusual organizations of its type in the United States. Outstanding among these activities are a fifty-piece band and a junior band of forty pieces, which have established a high reputation in amateur musical circles. Baseball, bowling, basket-ball, horseshoe pitching, target shooting, tennis, soccer football, skating, skiing, tobogganing, Boy Scouts, Girl Scouts and various civic and special activities also fall within the scope of the Recreation Club's program.

The Kohler Woman's Club, in recognition of its work in sponsoring annually a Better Homes Week, a National Music Week, a Village Fair and Harvest Festival, a child health clinic, evening art classes and various community programs and suppers, has been chosen as one of the ten outstanding clubs in this country. Three times has Kohler village received honorable mention for its Better Homes demonstrations; once the community won a special mention, and last year the village was awarded a special prize of $100 for the best demonstration of attractive residences in an industrial community.

Good sense and forethought applied to the business of living together thus have made possible in Kohler the building of an industrial community that possesses in unusual measure the qualities of an ideal home town.

"An Industrial Village of Home Owners," by Rhys G. Thackwell, in THE AMERICAN CITY, May, 1927, pages 669-671, described and illustrated other phases of Kohler's development.

A New State Capital Civic Center Plan

By GEORGE H. WATSON

PLANS for one of the most beautiful governmental centers in the South have been drawn for the State Capitol grounds of Alabama at Montgomery by Olmsted Brothers, landscape architects, of Brookline, Mass. Provisions have been made for all public buildings to meet the requirements of the next fifty years.

Under the plans as drawn at the instance of Governor Bibb Graves, state, county, and city governmental buildings as well as fraternal structures will be grouped around the State Capitol, which stands at the head of Dexter Avenue, the main thoroughfare of the city.

The location of buildings either already erected or proposed are shown on the accompanying plan, as follows:

1. Site of proposed Grand Masonic Lodge Building.
2. Site of proposed City and County Building.
3. Scottish Rite Temple, already constructed and in use.

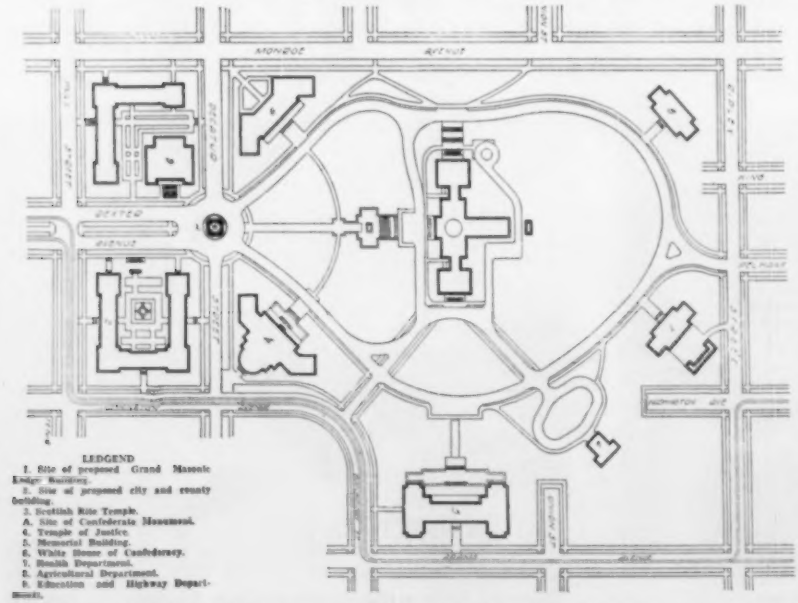
A. New site for Confederate Monument. This contemplates the removal of the monument from its present location at the end of the north wing of the Capitol Building.

4. Temple of Justice or Judiciary Building.
5. Proposed Memorial Building.
6. First White House of the Confederacy.
7. Health Department.
9. Education and Highway Department.

The state will of course have to purchase additional ground in working out this plan, as will the city, county, and fraternal orders. Governor Graves has held several conferences with city and county officials of Montgomery. They are heartily in accord with the plan.

On authority from the Governor, the architects have also drawn elaborate plans for the further expansion of the University of Alabama, the Alabama Polytechnic Institute and Alabama College.

Finished Plan For State's Governmental Center


LEDGEND
1. Site of proposed Grand Masonic Lodge Building.
2. Site of proposed city and county building.
3. Scottish Rite Temple.
A. Site of Confederate Monument.
4. Temple of Justice.
5. Memorial Building.
6. White House of Confederacy.
7. Health Department.
8. Agricultural Department.
9. Education and Highway Department.

PROPOSED ARRANGEMENT OF BUILDINGS ABOUT STATE CAPITOL OF ALABAMA AT MONTGOMERY

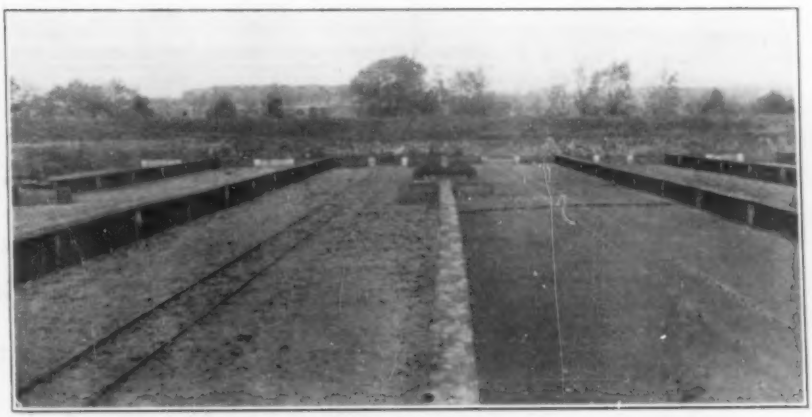
Sludge from Contented Imhoffs

By MORRIS M. COHN

SANITARY AND TESTING ENGINEER,
DEPARTMENT OF PUBLIC WORKS,
SCHENECTADY, N. Y.

THE "plus" of "water-plus," the "power for evil" of sewage, add greatly to the sewage plant operator's woes and make even his brightest days seem evil. The liquid portions of the sewage pass well-manneredly through the sewage-works treatment units, asking only for hydraulic right-of-way to the rippling streams that carry the pearly waters through meandering courses to meet the sea. Freed of its load of solids, it gurgles on its way, but it has left its troubles behind in the hospitable chambers that offered it temporary peace and tranquility.

The disposition of the sludge produced by all of the known processes of sewage treatment is the fly in the ointment of all sanitarians. The dreams of our more optimistic forebears, that the solids deposited would destroy themselves and melt away into sweet nothingness, have been proved to be even more rosy-hued than an engineering student's hopes of remaking the scientific world and ending his days in affluent luxury. Be it in septic tank or Imhoff tank, in separate sludge digestion tank or in activated sludge tank, in chemical precipitation tank or humus tank, the sludge is there, despite the ravenous appetites of the trained bacteria and protozoa that are turned loose on the unsuspecting mass.



THE CENTER-FEED OPEN SLUDGE DRYING BEDS AT SCHENECTADY, N. Y.

Conditioning the Sludge

Leave it to the wily engineers to get the sludge in satisfactory condition for disposal! By their artifices you shall know them. The sludge being produced is being given most tender care. It is being limed to sweeten its disposition; it is being heated during the entire year to improve its character; it is being guarded as carefully against the intrusion of excessive amounts of green solids as our immigration quota is guarding the proper balance of old settlers against newcomers in these United States. It is being dried in pleasant glass-covered solariums, it is being dehydrated in expensive centrifuges with hyphenated names and in vacuum filters and silently powerful presses. It is being babied and pampered. The engineer leaves nothing unturned to give him a splendid good quality sludge. But, then, being mentally and physically exhausted, he wonders, half-heartedly, what to do with the product of his genius, and often winds up by dumping it into a lagoon, or using it to fill holes about the plant site. . . . Sin of Sins. . . .

FARMERS LOADING TRUCKS FROM SLUDGE STORAGE PILES AT SCHENECTADY

What Ho! Fertilizer

Strange as it may seem, those optimistic forebears of ours who expected to get nothing out of settling tanks, knew the value of human waste material as a fertilizer. We know today that sludge has fertilizer constituents. Much scientific investigation has been carried out to prove its merits. Even if you don't believe that all things that come from the soil should be returned to it, you can see the value of sludge as a plant food. Sludge-disposal problems will disappear when the farmers of the country learn that sewage sludge is a good, cheap, natural fertilizer that they can get at the sewage works, in their vicinity. Sludge can be sold, if honest-to-goodness efforts are made to "sell" the idea to the farmers.

Marketing methods used by the writer at Schenectady, N. Y., have, apparently, been most successful for the past six years. A review of sales procedure used there should give others experience in tested promotion methods and foster that more elusive thing, encouragement to sponsor the use of sludge to that man from Missouri, the farmer of the country.

Sludge Production at Schenectady

At Schenectady the average sewage flow of approximately 9 m.g.d. is clarified in nine Imhoff tanks prior to filtration through three acres of trickling filters. During the months from May

through November, the digested sludge is removed from the tanks at regular intervals under hydrostatic pressure and is pumped to 0.87 acres of open sand drying beds, which provides 0.57 square feet per capita contributing sewage to the plant. The presented tabulation indicates the amount of sludge solids removed from the tanks during the past six years.

The sludge dries from the applied depth of approximately 10 inches to a cake of 3 to 4 inches in thickness which contains approximately 65 per cent moisture and is readily forkable. The sludge is loaded onto hand-propelled dump-cars on industrial track, transferred to a dump-wagon and stored in long, parallel rows in a storage field. Fertilizer analyses are carried out on the sludge at regular intervals and show the stored material to contain about 45 per cent moisture, 1 per cent nitrogen, equivalent to 1.2 per cent of ammonia, 1.7 per cent phosphoric acid, equivalent to 3.6 per cent bone phosphate of lime. Potash runs under 1 per cent at all times. The sludge is loamy in consistency and odor and has the usual spongy appearance.

Selling the Idea to the Farmers

Some might think it was high-pressure salesmanship that created the market for sludge at Schenectady. Others would call it good business, but I label it perseverance with a piquant dressing of good business methods and a garnishing of high-pressure urging. But, whatever it is that did it, it still remains that scores of hard-headed, sensible farmers who know their onions—yes, and their potatoes and corn too—have removed every bit of sludge produced at Schenectady for the past six years and have scraped and scratched around the storage piles for more. I like to relate just how this interest in sludge fertilizer was produced and kept alive, because I can sit back now and look upon the stream of farmers' trucks passing up and down the plant road. It's pleasant to recall the first truck that ever came down and the doubting farmer who swung himself uncertainly out of the cab, rubbed the stubble on his chin with a calloused hand and said, "Reckon I'll try a load of that there stuff I heard you talk about at the meeting yesterday."

During the summer of 1924, after the Schenectady treatment works had been in operation some nine years and no real market for sludge had ever been produced, the writer prepared to make a decided effort to interest the farmers of the vicinity in the fertilizer value of sludge. The line of reasoning that led to this decision was not un-understandable—sludge was being produced—there was no place to put it—other cities were selling it—what they could do, we could also do.

It was not a difficult task to gather together much evidence in books and current periodicals that proved that sludge was being used as a fertilizer with some measure of success. Letters were sent to managers of Farm Bureau Associations or farmer cooperative group leaders in certain sections of the country, asking them for their opinion on the value of sludge being used by their constituents. Many replied favorably. Samples of sludge were sent to the Department of Agronomy of Cornell University, and a report was received from their soil expert that sludge contained certain percentages of ammonia, bone phosphate of lime and potash, as well as large quantities of organic plant food. With an imposing array of ammunition, we were ready for the fray.

An invitation to the Manager of the Schenectady County Farm Bureau to visit the treatment works to "see something of interest to him and his constituents," brought an intelligent, trained agriculturalist down to see me. He had never seen a treatment plant, let alone sewage sludge, but was anxious to see anything that might help the Schenectady County farmers grow bigger and better crops. To say I talked myself blue in the face that morning would be to put it mildly. I presented facts—and some fiction, I grew eloquent on the needs of the farmers for a cheap, natural fertilizer to replace the fast-dwindling supply of horse-manure, and proposed the sewage plants of the country as the friend of the farmer. I was stumped somewhat by the question that if this sludge was as good as I said it was, why hadn't we been selling it at Schenectady since 1915, but I got by that somehow. When he found that my letter from Cornell University was signed by his old Agronomy professor, he was "sold." Before he left me, he had promised to recommend sludge to his Bureau members and aid in our sales campaign in all ways possible.

The battle was half-won. A notice appeared in the Farm Bureau monthly paper stating that sewage sludge fertilizer was available at the Schenectady sewage works and that its use elsewhere had proved successful. A questionnaire on farmers' problems issued by the Farm Bureau at that time contained the question, "How can sewage sludge be used on my land?" We obtained the cooperation of the local papers, and short, interest-arousing articles about sewage sludge appeared on the farm pages of those papers. I received my first invitation to address a farmers' meeting out in the country and traveled hesitatingly out to a country church with a bottle exhibit showing raw sewage, tank effluent, wet sludge and chunks of air-dried sludge. I explained how sludge was produced, and passed around the sludge fertilizer for the "feel-and-smell test" that the

Sludge Fertilizer

Is Produced By the Treatment of Municipal Sewage.

For This Reason Care Should Be Taken in Its Use.

Keep Sludge From All Crops That Grow In or On the Ground and Go to the Table Uncooked.

The Schenectady County Farmers Have Found Sludge To Be An Economical Fertilizer. We Will Gladly Help You To Make It Successful On Your Land..

BUREAU OF SEWAGE DISPOSAL,
DEPT. OF PUBLIC WORKS,
CITY OF SCHENECTADY

members gave it. My reception was not over-warm. The interest of the farmers was not even tepid, but don't forget that the Farm Bureau manager was there. Somehow an open discussion started and interest was born. My first customer was the fellow who sat in the first row and picked up and laid down my sludge sample six times during the time I was talking.

That fellow was the hardy pioneer who blazed the trail for the other farmers of the vicinity. When he drove home with his queer-looking load, his neighbors wanted to know what he had there. Interest is like the measles, it's catching. Soon, other men came to the plant for sludge. It took hours of talking to each individual farmer down at the sludge dump to make friends for the sludge. More downright persistence, more honest-to-goodness effort went into selling that first summer's sludge than was ever given the sale of gold watches or platinum-mounted diamond rings. A serious effort was made to explain what sludge was and to give advice on how it should be used. Many visits were made to the farms of the "key-men" of each section, who were using sludge, in order to keep check on the progress of sludge-fertilized crops.

Keeping Up the Campaign

The sales campaign has continued for the past six years, even though, at times, it appeared that further promotional effort was unnecessary. A series of changes in the personnel of the Farm Bureau necessitated the winning-over of new managers to the cause of sludge as a fertilizer. A series of articles have appeared in the *Farm Bureau News*. New letters of recommendation have been solicited from the Cornell College of Agriculture. The fact that a professor from that college computed that sludge should be worth from $4.00 to $6.40 per ton to the Schenectady county farmers was certainly not kept out of print. The writer has become a permanent fixture on the speakers' program at large farmers' meetings, and his exhibit bottles are the subject of good natured banter, but the old fellows don't get a chance to forget his message, and the new ones can't help but hear that they need sludge for their land.

The sale of sludge has continued at a satisfactory rate. Each year the sludge produced has been removed by spring. The farmers have cleared every last pound of sludge from the storage piles, and have often had to leave empty-trucked. For the past six years, the last drawing of sludge for the summer has gone to the beds about the first week in November to remain on all winter. The farmers have removed this sludge before spring, often harvesting it like ice from the beds, and have saved the city an estimated sum of about $1,500 in labor and team hire. The average haul of the farmers has been about seven miles, the longest haul being seventeen miles. The day of the farm wagon is gone. The sludge haulers use trucks that vary in size from the converted Ford roadster to the five-ton dump-body outfit. The sludge is sold to scores of farmers and amateur gardeners. It is interesting and encouraging that a satisfactory percentage of our present customers can be traced back several years in our books and that the first hardy spirit still pays us a visit.

Some little sludge has been sold to a golf course, and small quantities have gone to florists. The local Park Bureau has used quantities of sludge on lawns and in flower-beds. There has been an awakening of interest in our product on the part of the local householders, who are coming to the plant in increasing numbers with burlap bags and bushel baskets for small quantities of sludge for flower boxes and lawns. A local hardware store offers pulverized sludge in feed bags at $1.00 a bag, and an enterprising young chap is now selling sludge at 50 cents a bag delivered. On a busy day, the plant looks like the site of a grange meeting. Neighbor meets neighbor at the sludge pile, and town politics are discussed between the grunts of the wielders of shovels of fertilizer.

Back in 1924, we should have been pleased to give the sludge away to the farmers—and give them a vote of thanks besides. But a charge of 10 cents per load was made in order to make them feel that we required a nominal payment and kept a record of the sludge removed. The price was raised to 25 cents a load a year later, but, despite our grave fears and intense trepidation, this raise in price did not result in loss of our customers. This price has been maintained to date. No special loading facilities are provided. The farmers load their trucks from the piles in the fields or have the privilege of backing-in on our sludge-bed dump-platform in place of our horse and wagon when the plant operators are removing sludge from the beds. In the winter and spring, the farmers clear the sludge from the beds themselves by means of the dump-cars on industrial track. Every purchaser of sludge receives a handbill as reproduced on page 134, warning him to keep sludge from crops that grow in or on the ground and go to the table uncooked. No sludge is allowed to leave the plant until August, in order to prevent the use of newly dried sludge on crops grown during that year.

Truly, the farmer is from Missouri. He is hard to convince. He must be shown. You never know when a bad summer may be blamed on the sludge the farmers put in last fall. The formula for success in marketing sludge is work, hard work, plenty of it. If you have a nice convenient borrow-pit at your plant and think you have enough to do without taking on the grief of catering to the whims of a fickle clientele, take my advice and don't launch a sales campaign. But, if you feel that the success of big business in devising uses for their by-products and teaching a willing world to use them, is a challenge to you and your ubiquitous sludge, remember the formula is work, hard work, and plenty of it.

SEWAGE TREATMENT PLANT, SCHENECTADY N. Y.—OPERATION OF IMHOFF TANKS

		Sludge Drawn from Tanks			
	Sewage Treated	Wet Sludge		Dry Solids	
Year	M. G.	Cu. Yds.	M. G.	Pounds	Lbs. M. G.
1924....	3220.8	6823.0	2.12	626,000	194
1925....	3175.5	8847.0	2.79	670,000	211
1926....	3029.5	8675.5	2.86	732,000	242
1927....	3109.2	7219.0	2.32	978,000	315
1928....	2341.3	7166.0	3.06	678,000	290
1929....	2965.6	9702.0	3.27	850,000	287
Av. 1924-1929..	2973.7	8072.1	2.74	755,670	257

Private Concern Establishes Traffic Court

A MILWAUKEE baking concern has developed a combination "traffic department and police court" in its effort to reduce motor-vehicle accidents. The company has formed a safety committee and an executive safety trial board.

This board meets at 4 p.m. each Tuesday to consider accidents in which members of its fleet of truck drivers are involved. Drivers are required to make two reports of the accident, one going to the board and the other to the insurance company.

The board also utilizes police traffic bureau records to obtain full accounts of the accidents if serious enough. While drivers report all mishaps, only the more serious ones are considered. Responsibility for the smash is determined, and, if the company employee is to blame, he is duly warned.

"Our idea is to promote the public safety," said Louis M. Laue, Vice-President of the concern and chairman of the safety committee. "We have found that the system has reduced the number of accidents in which our drivers figure, to 5 a month as compared with 15 a month last year. We also get some odd claims which are settled by the board.

"For instance, one man wanted $10, claiming that one of our trucks backed over and broke two bamboo fishing poles. The board's investigation ended in a compromise. There are many others, such as running over a dog in a farmer's yard and breaking a grindstone in a slippery yard.

"We believe the board is proving of great value."

Charles N. Burton, Comptroller of the company, is secretary of the board and the committee, which includes four other members.

OAKS
A 1930 glimpse of planting of 1906, Heller Parkway

Newark Pioneers Steadily

By CARL BANNWART

SUPERINTENDENT, SHADE TREE DIVISION,
DEPARTMENT OF PARKS AND PUBLIC PROPERTY, NEWARK, N. J.

NEWARK had existed for 200 years as a tree-minded city, before it began to develop a municipal tree problem. Early settlers showed their regard for trees by naming the principal streets after them, and even planting rows of trees to match the names—Walnut, Chestnut, Elm, Spruce and Plane. In the surrounding woods there remained plenty of young trees ready for transplanting. Buildings were low, with plenty of open spaces. Pavements and overhead wires and underground pipe systems or conduits were unknown. Every householder planted his own trees and tended them carefully, and the birds kept down the insects.

In contrast to this, we now provide openings in paved sidewalks and enrich the planting pit with top soil. We have sewer and water pipes and telephone conduits underground. There are overhead wires—telegraph, telephone, electric power and trolley. The air is polluted with dust and soot and noxious gases. The insectiverous birds have been crowded out by sparrows. Notwithstanding these limitations, Newark through its Shade Tree Department is living up to the old traditions in cherishing trees and systematically planting and caring for them. Our modern history in this field began with Charles G. Titworth, through whose advocacy the city in 1904 set up a continuing department to cope with this problem. Since then, the work of caring for the shade trees and planting new ones has proceeded in a legal, orderly and systematic manner.

Thousands of towns and cities in the United States have a tree problem. Many of them frequently send us inquiries concerning our administration and method. Recent information has been requested by the cities of Iowa, Utah, Oregon, Tennessee, Florida, Montana, and other states, and by cities of Canada. The inquiry—like the problem—is continent-wide. City trees are strangers to considerate treatment. The plantings of former generations are being neglected and the absentee landlord plants none for the present or future generations to enjoy. What is needed is a definite municipal agency which does this one thing—plants and maintains street trees.

SIXTEEN-YEAR-OLD NORWAY MAPLES
A view of Bock Avenue, showing planting of 1914

The Shade Tree Law

The New Jersey Shade Tree Statute does this effectively. It has converted the pioneer trail of the tree planter into a highway. For whereas, without this law the advance of tree planting and protection was slow, tortuous and inadequate, with it municipalities bid fair to excel in the East. Extensive plantings may be almost automatically projected, completed, paid for and maintained.

The law provides for a shade tree commission of "three freeholders who shall serve without compensation, and who shall have the exclusive and obsolute control and power to plant, set out, maintain, protect and care for shade trees in any of the public highways" of the municipality. The powers of the commission are corporate and have the corporate strength of the entire municipality behind them. The trees, which were nobody's particular care, are now committed to the custody of three leading citizens adequately empowered, whose zeal, civic patriotism, love of trees and administrative ability are concentrated on maintaining and promoting their welfare. The advantages of this arrangement have been thoroughly demonstrated in Newark and elsewhere.

The status of street trees is raised. They stand forth now before all the people as the special wards of a special municipal department especially created to protect them. Having long been strangers to considerate treatment, they have come into their own. Not only does a commission protect the fine old trees of our fathers, a public sentiment which is constantly enlarging cherishes them. The Commission is warden of the older trees, and also planter of the new. In Newark, where the law has been in force for 26 years, 35,000 young trees on 230 miles of streets have been set out.

The Property Owner Pays

Also included in the Statute is the authority of a shade tree commission to assess the cost of new plantings against the property in front of which they are

in Tree Care

"The Town seeing some trees spoiled in the streets by barking, or other wise: The Town hath agreed that no green Tree within the Town as marked with N shall be barked or felled, or any otherwise killed, under the penalty of Ten Shillings so killed."

—From the Minutes of the Newark Town Meeting, February 6, 1676.

"We came to Newark which I thought was one of the neatest and prettiest towns I had ever seen."

—Thomas Twinning, one of the founders of the British Empire in India, after visiting Newark in 1798.

AN AVENUE OF ELMS

These, also, were planted in 1906, and in a few more years wil over-arch the roadway of Mulford Avenue

set out. This assessment become a lien. The money from this source is reinvested in other plantings. The average assessment is $5. This covers once for all the entire direct cost to the owner. If the tree dies, it is replaced under guarantee without extra charge to the property.

The Commission is required to give public "Notice of Intention" to plant certain streets or portions of streets through "one or more of the newspapers of the municipality." After "a hearing granted to all persons who appear in relation to such contemplated improvements," the streets to be planted are finally determined. Instructions are then given to go ahead, and the season's planting is begun.

Accomplishments

In cities in New Jersey which have changed to the so-called city commission government, the authority vested in a Shade Tree Commission under the aldermanic form is exercised similarly by the City Commissioner who is Director of Parks and Public Property; and the staff of the Shade Tree Commission becomes the Shade Tree Division.

What are the things which the city of Newark has accomplished under a Shade Tree Commission and, later, as a Division of the Department of Parks and Public Property?

We have conducted systematic plantings. As fast as the city engineers have laid out new streets, we follow up their work with regular lines of trees, evenly spaced and of desirable species.

These trees are systematically trimmed and sprayed, when necessary. The trimming is done for the good of the tree and the street as a whole, as against the individual trimming which might be done to suit a property owner of eccentric taste.

We cultivate the earth at the base of these trees during the growing season, keeping the ground loose for the necessary supply of air and water. We also supply them with manure and fertilizer.

We collect from motorists and others who destroy trees a sufficient amount for replacement. We make it easy for any citizen who wants a tree planted to satisfy that craving for the artistic.

We maintain a city nursery, where the trees are properly transplanted and qualified for the severe struggle under the hard conditions of city streets.

We remove dangerous trees entirely, if they are dead, and remove dead wood in expert fashion when a portion of the crown can still be salvaged for its mission of shade.

We have checked the drift toward quick-growing and undesirable species by advocating the more durable varieties, less subject to insect injury and storm damage.

And, finally, we have sought to transfer this ideal of streets made inviting and parklike by means of trees, to the children of the schools—the coming citizens—to the police officials, even to the milk companies that still use horses.

In a word, we have planted 35,000 trees along the streets of Newark and we are taking care of these and the 25,000 planted by private initiative. These trees are the eloquent advocates of an adequate city tree department.

We have planted trees, but we have also planted knowledge of trees and love of trees in the heart of childhood and of youth, and with the help of all citizens "we will keep our city awave with trees."

Street trees become increasingly an active problem as well as an asset to their cities. In the May issue, in the above article, and in reports from other municipal officials to appear later, a body of valuable and representative current practice is incorporated.

AGE INCREASES BEAUTY

The pin oaks in Cliff Street (above) were planted in 1913. The silver maples on Munn Avenue (below) are of 40 years' growth

Avoiding Errors of Haphazard Growth

The General Regional Development Scheme of Melbourne, Australia, Is Designed to Avoid the Normal Mistakes of Fast Expansion

"PRUDENT expenditure at an opportune time will obviate much larger expenditures in time to come. Wise planning in relation to constructive developmental works can provide for many public needs, and if not exercised . . . impassable barriers are created which will make it impracticable except at huge cost to furnish the community with facilities that can now be predicted as future necessities."

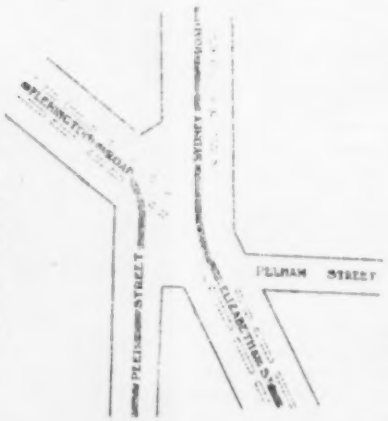
These sentences are from the foreword of the recently published Plan of General Development of Melbourne, Australia. They are indicative of the citizen sentiment which, as early as 1920, led to activities that resulted in the creation of an honorary Metropolitan Town Planning Commission—pioneer body of its kind in Australia—and to the regional plan.

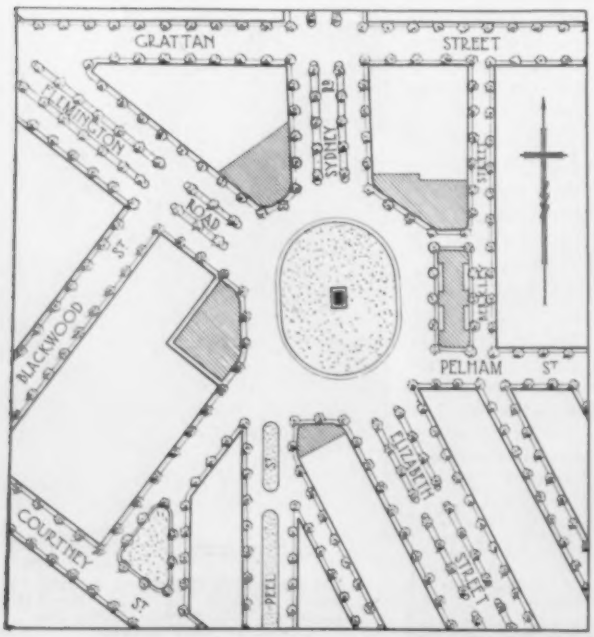
The Commission is composed of public health officials and private citizens, including specialists in professional fields, and has from the first been peculiarly alive to its almost unique opportunities. Melbourne is today the sixth city in the British Empire. It is a city only 90 years old, in a new country, and is just entering a new stage of its growth. The Commission has "learnt a stern lesson from disastrous experiences of cities elsewhere," and has practically applied them in its own planning program. It has also concentrated upon a policy of correcting past defects caused by haphazard growth, before they become exaggerated and chronic. And it has sought the best precedent of new planning everywhere.

The report is cast in the form of a survey of current conditions and tendencies of urban development in the metropolis, with general plans and recommendations for improved guidance and control of such development and portions thereof. It includes such matters as streets and roads, transportation facilities and traffic regulation, waterfront and river improvement, amenities (including the conservation of natural beauties and the control and prohibition of nuisances, noises, and unsightly objects or structures), zoning, open areas, land subdivision, building regulations, housing, food distribution facilities, etc. It presents, altogether, an amazingly broad attempt to enhance the value of life as represented in the environment common to the whole populace.

THE HAYMARKET JUNCTION

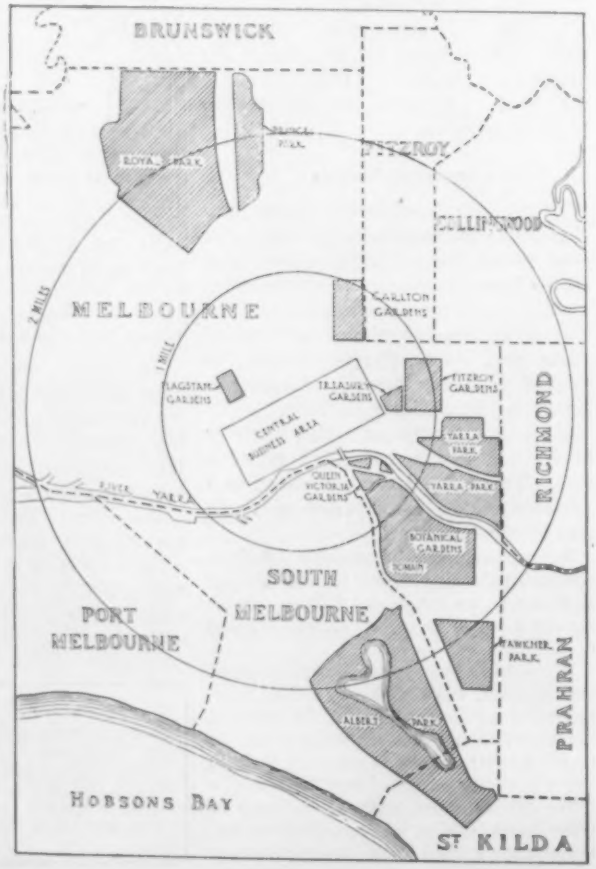
A survey showed traffic impeded at what is one of the city's main gateways by needlessly wide roadways and inadequate traffic control. The replan scheme, below, secures automatic traffic control by the introduction of a rotary, or gyratory, scheme

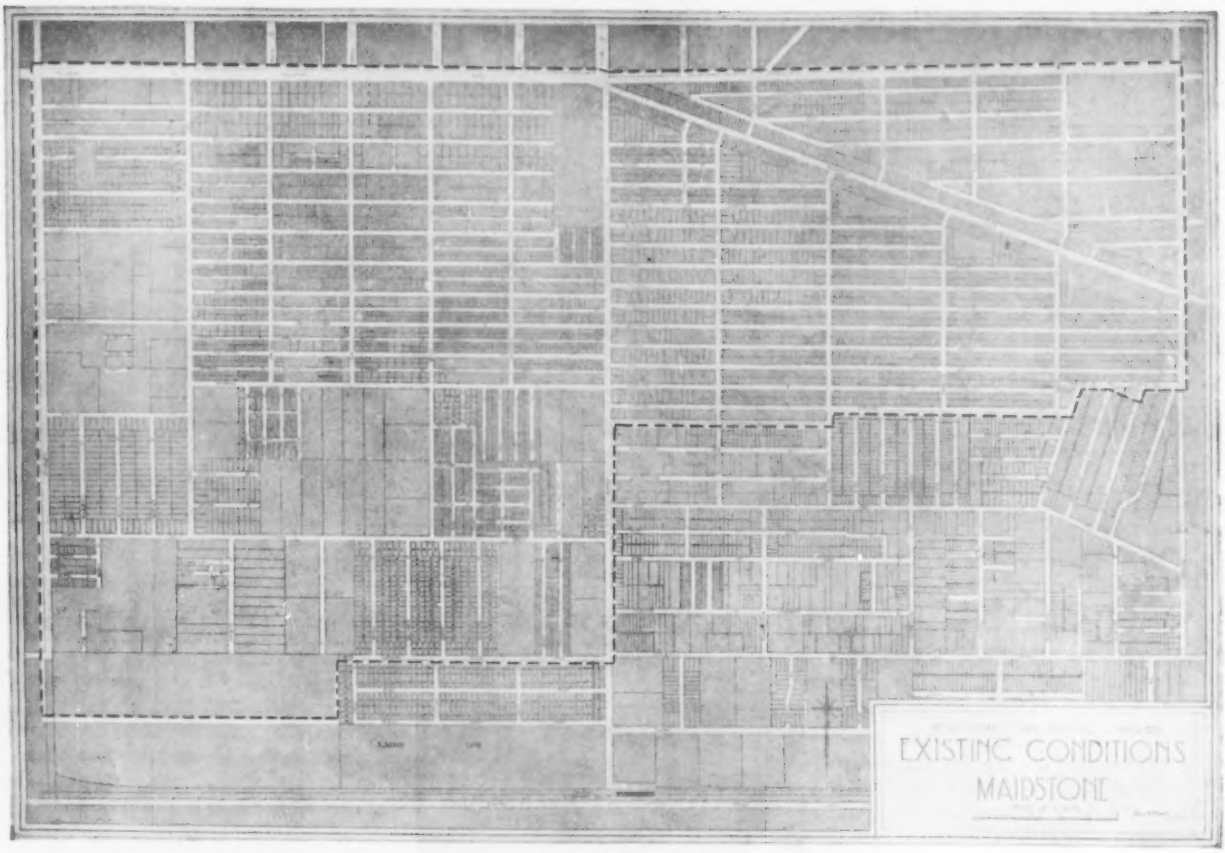


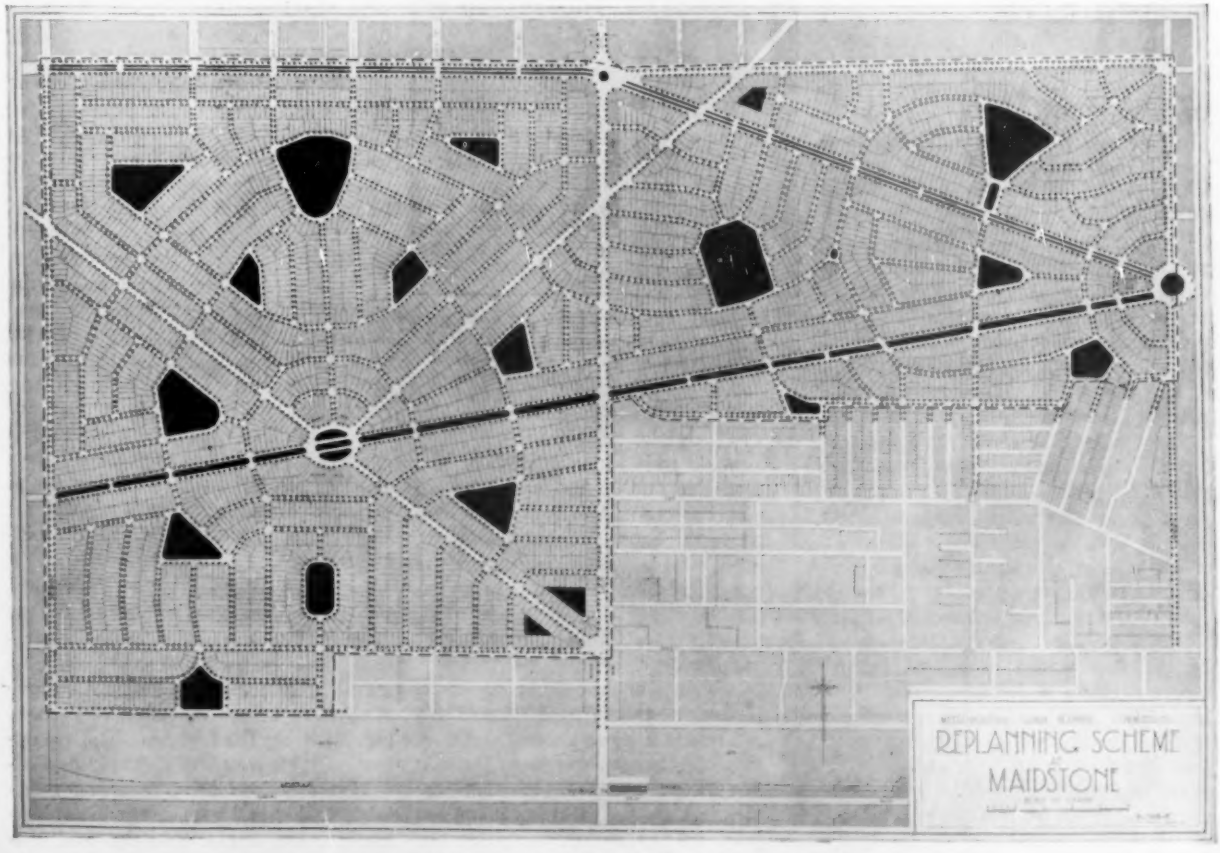


OPEN AREAS

The illustration to the right is the Commission's diagrammatic plan for large open areas within the 2-mile radius of the central business area. A 5-acre - per - 1,000 standard for potential population has been used







A SECTION OF MELBOURNE AS ORIGINALLY PLANNED AND AS REDESIGNED

Chicago Architectural Photography Co.

The Civic Auditorium of La Porte, Ind.

HERE is a building that is noteworthy among the 1929 acquisitions of public meeting places by American cities. It "is intended to promote public welfare, centralize all activities in which the several local groups or organizations are jointly interested, and more efficiently serve their various needs. It . . . . provides better and more adequate facilities than do other separate buildings previously erected in the community, but will not compete in any manner with their individual aims and purposes."

The site, building, equipment, and furnishings, representing an expenditure of approximately $450,000, came to the city cost-free; and the generosity of the donor, Maurice Fox, did not even then reach its bounds. A trust fund of approximately $50,000 has been provided to apply towards maintenance, upkeep, and service of the building; the municipality to provide the balance.

The building site comprises a full city block. The structure covers a ground area of 24,000 square feet. It is of fireproof construction throughout. Its greatest over-all length is 235 feet; width 114 feet. Neiler, Rich and Co., of Chicago, were the designing engineers; John J. Davey, their architect in charge. The architecture is an adaptation of French Renaissance developed in red tapestry brick, with Indiana limestone trimmings. The main entrance vestibule opens directly into a spacious lobby. Broad stairways at both ends of the lobby lead to the mezzanine floor. Facing the main entrance doors, two tablets of statuary bronze are prominently placed, making clear the memorial character of the building and the community use to which it is dedicated.

A MODEL OF MODERN PLANNING

This building is a fine example of planning for maximum utilization of interior space

The main auditorium is 162 feet long, 112 feet wide, and 50 feet from the main floor level to the underside of the roof—41 feet to the bottom line of the arched, full-span, steel trusses. The arena is 134 feet long, and 57 feet wide, with a basket-ball court 95 by 50 feet occupying its central portion. On the ground floor are manager's office and ticket office, cloak rooms, men's smoking-rooms, ladies lounge and dressing-room. On the mezzanine floor is a small assembly hall which can be used as a separate unit, or thrown into one with the large auditorium. Above the mezzanine are the projector booths and ventilator fan plants. General toilets, shower and locker rooms are in the basement.

Above the main entrance doorways, as shown in the illustration, and accessible from the small assembly hall on the mezzanine floor, is a colonnaded loggia which is the dominant feature of the façade.

In the basement beneath the auditorium section are a large reception or social hall and gymnasium, 62 feet by 118 feet; bowling-alleys; a dining-room; kitchen and service halls.

The stage is 30 feet deep and 62 feet wide. The gridiron is 52 feet above the stage floor. The proscenium arch is 54 feet wide, 40 feet high, and 15 feet deep, with a curtain opening 35 feet in width and 24 feet in height. A stage extension projects 110 feet beyond the line of the fire curtain. The floor is in sections, and when removed, provides an orchestra pit of ample size. Adjoining the stage are property-room and dressing-room sections. The whole provides a plan for the production of dramatic entertainment equal to that in the best commercial theaters. The total seating capacity of the auditorium is 3,600 persons for stage performances; 2,500 for arena performances.

La Porte is a city of 15,740 inhabitants. W. A. Goering, Superintendent of the Civic Auditorium and Gymnasium, reports that the new building began almost immediately upon completion to prove a valuable center of community social life. "During the first month of its operation," he says, "19,204 persons attended functions here, including musicales, basket-ball games, banquets, boxing, parties, cards, dancing, and displays."

A New Technique in Road Construction

Cotton Membrane Installed in Bituminous Surface Mat Construction

By H. S. JOHNSON

HIGHWAY improvement is the order of the day. On every side the demand for good roads—and for better roads—has attained such proportions that highway engineers, builders and public officials are confronted by the question of how to meet such urgent needs and build for the future. New methods and new technique steadily make their appearance, so that the highway engineer is searching for the best and most modern methods of construction.

There is particular significance in experiments now being made with the use of cotton fabrics in improving country roads by a modification of the bituminous surface treatment of earth-type roads. The results of these experiments, which have been carried on in South Carolina since 1927 and in Texas since 1929, already have attracted extensive notice in foreign countries as well as in the United States because of the distinct changes in engineering technique that are now indicated.

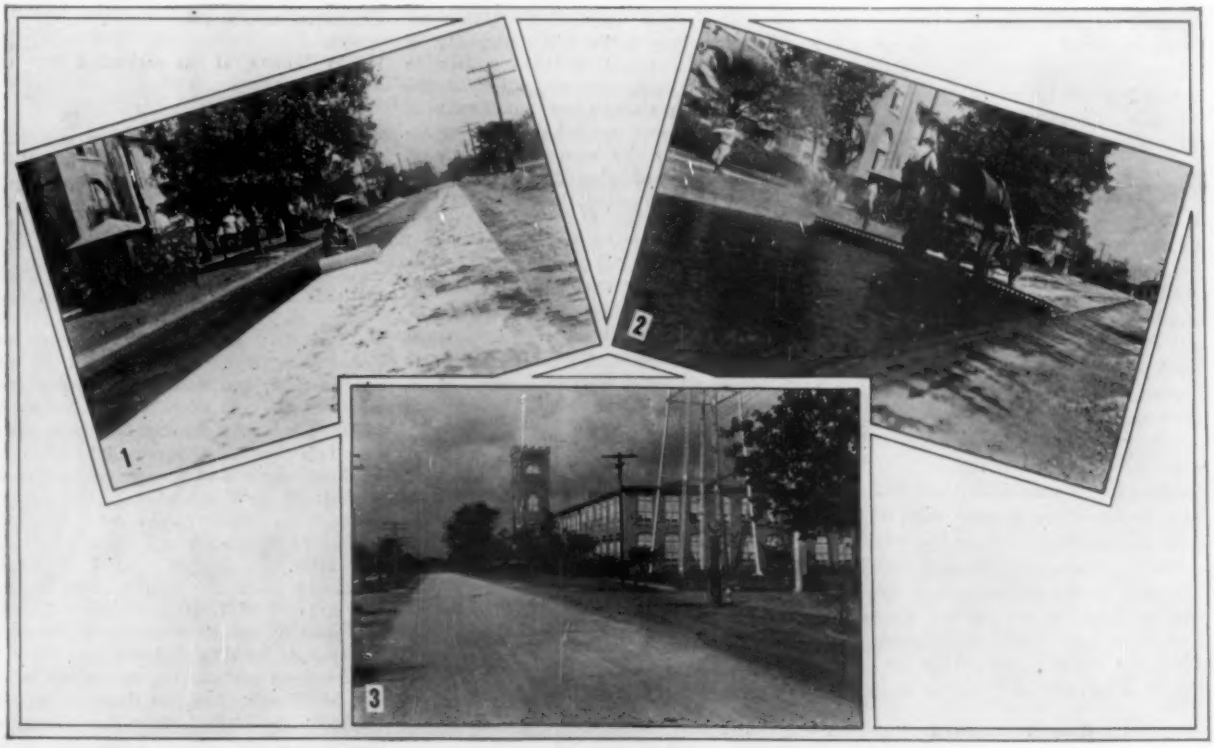
It was fitting that experiments with this new use of cotton should be undertaken first in the South, where cotton is important not only as a farm crop but as a manufactured product. In an effort to determine the practical value of cotton in road construction, Charles H. Moorefield, State Highway Engineer of South Carolina, installed a cotton membrane in a bituminous surface mat constructed on the earth-type surface of country roads that were being improved in Spartanburg and Newberry Counties in that state. Directly as a result of tests made since these experiments were started, highway engineers in Texas have undertaken similar work. In the Texas experiment the entire surface of the road was covered with the fabric, as in the first experiment in South Carolina, while in the second experiment in the latter state only the shoulders have received the additional protection of a fabric covering.

At the present time, results of these experiments indicate that rural roads can be improved quickly, economically and satisfactorily by such use of a cotton fabric membrane in combination with light tar and asphaltic oil.

Preparation of Road Surface

In this method the highway is first subjected to the processing ordinarily employed in bituminous surface treatment of earth-type roads. The surface of the road is scarified and brought to the desired cross-section and grade, and is then opened to traffic to allow it to rebond, the surface being kept smooth by the use of scrapers or drags. The earth comprising this road should consist of small-sized gravel with a mixture of sand and clay as a binding material. After the surface of the road is thoroughly rebonded, it is again closed to traffic and swept clean of loose material for the entire width of the treatment, with a revolving broom, supplemented with hand brooms.

A prime coat of ¼-gallon per square yard of light tar, 8 to 13 specific viscosity, is then applied. This light tar should not have more than 2 per cent water content, the softening point not



LAYING A SECTION OF EXPERIMENTAL ROAD WITH COTTON MEMBRANE

1. Spreading the cotton fabric on the top of the tar-treated reshaped roadway. 2. Applying the 150 to 200-penetration hot asphaltic oil to the fabric and road surface. 3. A treated fabric roadway which has been in service nearly three years

more than 60 degrees C. or 140 degrees F., with a total bitumen content of 88 to 97 per cent.

Laying the Fabric

After an interval of 24 hours, a cotton fabric is spread longitudinally along the entire surface of the road treatment or along the shoulders only. This should be done while the tar is still sticky enough to hold the fabric in place. This cotton fabric weighs 4.61 ounces per yard 36 inches wide, contains 3½ warp threads per inch and 7 filling threads per inch, both yarns 4 ply.

Approximately 0.4-gallon per square yard of asphaltic oil 150 to 200 penetration at 77 degrees F. is then applied at not less than 275 degrees F. to the fabric and surface. The asphaltic oil must be homogeneous and free from water, and should not foam when heated to 347 degrees F. The surface is then immediately covered with about 50 pounds per square yard of coarse sand, or coarse sand and fine gravel, or finely crushed limestone or granite. As soon as this covering has been applied, the road is ready for traffic.

Detail Specifications

There are certain requirements in this method of construction that must be met in order to obtain a satisfactorily finished road. All dust, dirt, loose and foreign material must be removed for the full width to be treated, by sweeping with a revolving broom or other approved mechanical sweeper, supplemented by hand brooms. Dust or other loose material in depressions or other places not reached by mechanical sweeper must be swept out with hand brooms. Great care must be taken to thoroughly clean the outer edges of the strip to be treated. Sweeping should continue until all the dust or loose dirt is removed, before application of the prime coat of light tar. The tar should not be heated to a temperature greater than 150 degrees F. and should be applied at a temperature of not less than 125 degrees F. It should not be applied until the earth-type surface has compacted and bonded under traffic, and then only when this surface has been properly swept, is firm, compact and dry.

The asphaltic oil should not be heated to a temperature greater than 375 degrees F. and should be applied at a temperature of not less than 275 degrees F. It should not be applied unless the prime coat of light tar is firm and intact and free from any signs of moisture, and when the temperature of the air is not less than 50 degrees F. in the shade.

Results Obtained

When the experimental sections of the state highway in South Carolina thus treated were inspected after the first year, it was found that the shoulders of the highway were in excellent condition and showed very little wear. These experimental stretches totaled 1¼ miles in length, and the early success of the experiments was responsible for the State Highway Department's announcement that it would undertake similar improvements on 70 miles of highway during the succeeding two years.

One of the principal advantages of this new method of treatment is the low cost of the installation and maintenance. This is a particularly important factor in states having extensive networks of dirt country roads which for various reasons have not yet been improved.

Advantages

In addition to the comparative economy of initial construction, advantages are claimed for this method as follows:

1. Increased supporting strength of surfacing material under the outer edge of the treatment, by preventing rainwater from running off the impervious surface treatment and soaking into the surfacing material.

2. Reduced progressive failure of impervious surface treatment, by strengthening the treatment's resistance to shear and holding broken pieces of the treatment in place.

3. Tendency to delay displacement of small pieces of impervious surface treatment on the edges of a road where selected earth-type surfacing is of inferior quality or inadequate depth, or for any other reason is not of sufficient strength to support the wheel loads of highway traffic without appreciable deformation and has resulted in cracking in checkerboard design after the treatment has been in place long enough to become brittle, this cracked condition often being referred to as "elephant hide."

4. Delaying the forming of corrugations, by restraining flow or displacement of materials when too large a proportion of bituminous material has been used in the surface treatment or from traffic continually following one lane.

If the final results of service tests now being made with cotton in highway construction support the conclusions already derived, this new technique should be of great significance to road builders and the public that is demanding improved means of transportation.

Why Have Smoke?

A 20-Months Experience in Columbus, Ohio

SMOKE results from trying to burn fuel in furnaces not properly constructed for the purpose. It is caused by ignorance, carelessness, or negligence. Columbus, Ohio, has long realized the necessity of combating this evil, and the realization resulted in the passage of a smoke abatement ordinance which became effective in March, 1928, and which has largely transformed a sooty city into a smokeless city.

An account of what has been accomplished in eliminating the smoke evil in Columbus is given by J. J. McDowell, Superintendent, Columbus Smoke Abatement League, in *Columbus Today*. Soon after the office of City Smoke Inspector was created, he writes, the same group of citizens that had been instrumental in getting the ordinance passed organized the Smoke Abatement League, which was incorporated as a non-profit organization, and financed by citizens who realized the uncertainty of the authorized annual budget and felt it inadequate to the expenses of the essential educational work. This organization has on its staff a combustion engineer of thirty years' experience, whose duty it is to analyze smoke conditions of plants and make recommendations for changes to obtain the highest degree of efficiency.

In a 20-months period, Mr. McDowell records, these things have been accomplished:

181 stokers have been installed at an estimated cost of $238,000.

27 gas boilers, estimated cost, $13,825.

106 steam air jets, in forty-odd boilers, $530.

Three horizontal return tubular boilers with Cincinnati settings, $4,500.

Two boilers with oil burners installed, estimated cost, $1,425.

Two plants electrified, eliminating 16 smoky boilers, at an estimated cost of $60,000.

Total, $318,280.

One hundred and twelve new smokeless boilers (so-called) have been installed, with permits issued on the basis of smokeless coal being used. Owners have been persuaded to use smokeless coal in 114 old boilers. Firemen to the number of 1,513 have been instructed in proper firing methods for bituminous coal; and 650 enginemen in the best methods of firing.

Locomotive stack violations were reduced from 26 per cent in 1928 to 10 per cent in 1929; and station stack violations from 38 per cent in 1928 to 18 per cent in 1929; 268 smoke complaints were corrected in the period reported upon.

Twenty-three stacks were ordered extended; 17 were extended. Thirty-three photographs were made of violating stacks; 72 pyrometer and stack temperature tests were made; a total of 11,451 stationary stack observations were made, and a total of 7,141 locomotive stacks. Gas installations since smoke abatement work began have totaled 900.

"Based on government statistics," says Mr. McDowell, "loss and damage due to smoke in the United States was approximately $12 per capita. Columbus is a city of 300,000 population. A one per cent reduction of smoke makes $36,000 reduced loss to our citizens."

Child Painters for School Murals

By LOU ROGERS

The Little Red Schoolhouse is shown (right); and below it, the ocean and a vast river with many wonderful animals

DID it ever occur to you that the children of your community, and of every community, have a contribution to make to mural decoration? A contribution most natural and peculiarly fitting to the walls of public buildings devoted to them.

Divest your mind—if you haven't already—of the withered grotesquerie that children are pretty much precious little pots into which adult ideas must be poured. See them as they actually are—the first layer of the human race with unspoiled capacities and fearless self-expression. Then, read the following account of a mural job just completed in Public School 41 in New York City, the work of pupils in the experimental classes conducted in that school by Miss Elizabeth Irwin of the Public Education Association.

Children from six to thirteen, with no adult interference whatever, decorated the entire wall space of a big assembly room with real murals of their own designing, color schemes and all. With no preliminary drawings, their swift, eager hands painted directly upon the plaster with water-color paints. If they didn't like what they made, they wiped it out with infinite pains, and laid in a better thing. They didn't slop the paint as much as grown-up craftsmen do, either. An unspeakably dreary set of school walls, typical of vast wastes of such school spacings, leapt into vivid and joyous harmony with the child life surging through them.

On the south wall, in the spaces between the windows, they set forth their impressions of modern transportation in and about New York. The central panel is exceedingly happy in color, composition and execution. In crisp silhouette against a soft pastel mass of irregular skyscrapers an electric train thunders along an elevated track, motor vehicles speed across the strip of flat color beneath it, and a steam train rushes along the edge of blue water broken here and there by river boats. A boy of nine did this panel. He's "always kinder liked trains and things."

The form of a suspension bridge looms up through the panel to the right, and aircraft whizz through the left-hand space.

The opposite wall holds the sharp contrast of a desert in subdued yellows and browns dotted at pleasant intervals with all the things that should be in a desert, from a caravan with camels to the tents of Bedouins.

On the big wall space above the platform, in the keynote colors of their whole scheme, they have painted an ocean after their own hearts, with enormous fishes, boats of every nationality, a giant river watering whole tree-dotted, mountain-strewn continents with its tributaries, and on its lordly banks whole herds of elephants and giraffes and zebras, with a batch of swans sailing straight for the briny deep. A layout to thrill the soul of any child!

Perhaps the most exuberant and delightful decoration in the whole room they chose for the dreariest corner. A little red schoolhouse perches in a vast billowy expanse of fields, whereon sheep browse. Up the winding paths crowds of hilarious children are pellmelling to school, and a perfectly magnificent range of African mountains glower down at you from behind the top of a particularly ugly school cupboard.

The six-year-olds did the glass panels in the partition. Most amazing interiors and astonishing exteriors they are, quaint gay patterns children understand.

Not a suggestion of stale adultism mars the child forms in these murals. They are pure hieroglyphics of child experience glad and untrammeled, and must not be judged by maturer standards. It is mural art for children, by children.

Miss Irwin says that the children who did this work are not child geniuses nor anything approaching that. From the beginning of their schooling, they have not been made to conform to the rigid methods of public school instruction. They have used art as a means of self-expression. They never did anything like this before. But what of that? They'd give it a try anyhow. "Youth cannot fail," says Miss Irwin, "except through the inhibitions of self-consciousness."

Miss Dorothy Loeb, their art instructor, has respect for the creative powers of all children. She says that "the youngsters developed in the regular channels of public school instruction become somewhat self-conscious and inhibited in expressing their feelings and impressions about their experiences, and of course work less freely than these children have done."

"But," she declares, "any group of children anywhere, given equivalent conditions of sympathy and understanding, could produce equally satisfying results." And Miss Irwin agrees with her.

What a constructive gain in the national consciousness of beauty, if children got to feeling that schoolhouses really belonged to them, because they had a creative part in making them beautiful places!

The Municipal Building at Bryan, Texas

By BERTRAM E. GIESECKE, A.I.A.

GIESECKE AND HARRIS, AUSTIN - HOUSTON, TEXAS

THIS recently finished building is located in a city park adjacent to the railroad station. The park is about a half-block wide and two blocks long, and the proportions of the building are such that it is presented in a pleasant setting as seen from all four of the surrounding streets. The building has a fireproof concrete frame structure, and is faced with cast stone on all four sides.

The requirements as laid down by the City Council were that the building should house the administrative offices of the city, and also the central fire station, providing room for the equipment and living quarters for the members of the fire department. In order to secure the maximum amount of space with the money available, it was decided that a half-basement would be necessary. Accordingly, the main first floor was raised four feet above the grade line so as to provide ample light and ventilation. In addition, large areaways were placed at all basement windows.

The front wing of the first floor, as the plan shows, houses the city secretary, the Chamber of Commerce, and the white ladies' rest room. The entire second floor is given over to offices of the various city officials, and to an assembly-room seating 250. The central section houses the fire-fighting equipment.

The basement is divided into two sections: that under the front part of the building serving as part of the Municipal Affairs Department; that under the rear end of the building for the Fire Department section.

The front basement has two separate divisions. One comprises record vault, record storage room, janitor's storage room, and rest room for white men. The other division of the front basement is entered from the exterior by two distinctly separate stairways, one of which serves the Negro men's rest room, the other the Negro women's rest room.

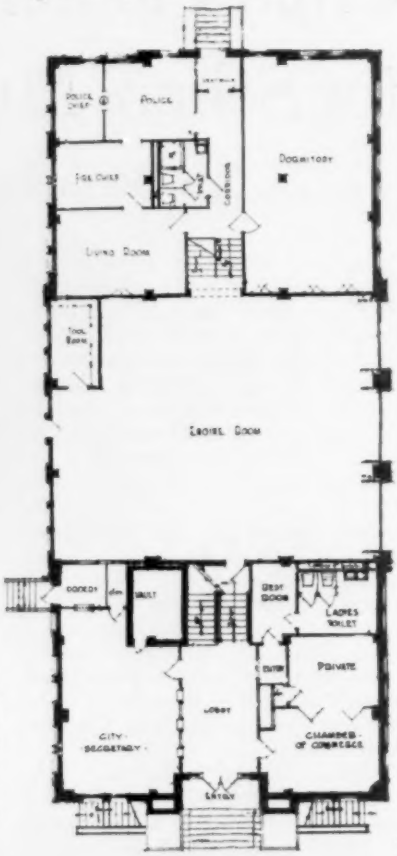
The basement section of the Fire Department is arranged with an apartment for a couple; and a large exercise room for the firemen. The first floor wing of the Fire Department has a large dormitory space, a living room, the Fire Chief's office, and an office for the Chief of Police. "Overhead" doors are used for the three openings in the fire equipment room.

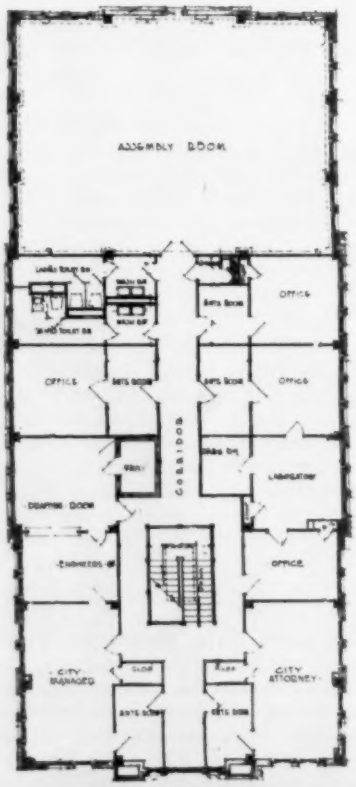
All interior trim is of red gum. All interior floors are of terrazzo. The building was planned by this firm, and constructed by Wentzel and Wood, contractors, of Sherman.

The cost was approximately $70,000, exclusive of architects' fee and furniture.

J. Bryan Miller is City Manager. The building was begun under an administration headed by him and Wilson Bradley, Mayor, and was completed with E. L. Jenkins as Mayor.

The Municipal Department Building fund and the Public Utility Department each paid one-half the cost of the building, or about $35,000 each. The municipally owned utilities are operated very efficiently, and an investment of approximately $700,000 is producing net revenues of about $90,000 per annum. The net revenues for the year ending June 30, 1929, were $85,704.75 after $7,060.64 had been charged off for public service rendered.





THE FLOOR PLANS
First and Second Stories

What It Costs to Collect and Dispose of Refuse in Lexington, Ky.

By ROY V. SHERMAN
ASSISTANT PROFESSOR OF POLITICAL SCIENCE,
UNIVERSITY OF AKRON,
AKRON, OHIO

THE garbage collection equipment in Lexington, Ky., consists of four 1-ton trucks and four horse-drawn wagons under the direct supervision of the Superintendent of Garbage Collection. The wagons are low-wheeled and drawn by a single horse. They are used to make daily collections in the business district. The trucks collect from the residential districts twice each week from May until October, and once each week during the rest of the year. One of the trucks is used as a pick-up truck. Except for certain Negro and low-class districts, the city is covered regularly, though not until recently did each truck and each wagon have a definite territory to cover.

All collections, except for a few instances in the business district, are made from the rear of the property. The garbage and combustible refuse is dumped into a tub and carried to the wagon or truck. In one case observed, two men working a truck collected a load of 2,500 pounds from 108 houses in a good residential section in 80 minutes. It is said that usually from 60 to 100 stops are made to collect a load of about 2,500 pounds. The wagons in the business district haul only two loads a day. Some of the trucks and wagons have a slop compartment near the front in which the best garbage is sometimes dumped, and at the end of the day it is taken to a small piggery on the city farm adjoining the disposal plant grounds.

Trash, cans, lawn clippings and other non-combustible refuse are collected by contract with the Superintendent of Garbage Collection at a cost of $562.50 per month. Six wagons with special low, wide bodies, six men and six horses are operated from October to May, and then four each for the remainder of the year. This material is hauled to two municipal dumps.

Incinerator and Piggery

The garbage and combustible refuse is taken to a two-hole 50-ton Nye incinerator located about two miles from the main business section of the city. A weighmaster has charge of the weighing of each load and entering the weights in a scale book—the only records kept. Two men have charge of the incinerator.

A municipal piggery is run in connection with the city farm and is under the direction of the Department of Public Affairs. No records are kept of the amount of garbage consumed in this way, but it is scarcely to be regarded as a part of the disposal system at the present time. During 1928, 58 head of hogs, 21 pigs and 10 shoats were purchased at a cost of $1,167.48, and $97.25 was spent for vaccination. For the same period, $2,202.42 was received from the sale of hogs.

THE NYE INCINERATOR AT LEXINGTON, KY.

An analysis of the cost of refuse collection and disposal was made by a study of the original vouchers, as no systematic records are kept.

During 1928, collection of combustible refuse and garbage cost the city $24,156.98. Of this total, $3,353.10 went for salaries of the superintendent and weighmaster; $144.35 for general office expense; $14,069.41 for payroll; $3,251.18 for truck expense; $2,995.47 for horse and wagon expense; and $343.47 for miscellaneous expense. During this period 6,848 tons of garbage and combustible refuse were collected and hauled to the incinerator, making a per-ton cost of $3.53 and, estimating an average haul of 2½ miles, a per ton-mile cost of $1.41.

Cost of Horse-drawn Wagon Maintenance

It cost $2,557.54 to maintain 5 horses in the collection system; of this total, $1,334.54 was for hay, feed, and bedding; $223 for horseshoeing and harness repairs; and $1,000 for wages of the stable man. On the basis of 300 productive days, this made a per diem cost of 89 cents, 15 cents, and 7 cents respectively; or a total of $1.71. Reasonable allowance for depreciation and interest would make the total about $1.79. The cost of repairs, grease and other expense for the wagons was $337.93. Making reasonable allowance for depreciation and interest, there was a per diem cost of 36 cents for each of the four wagons operated. Adding $3 for labor to operate a wagon, it cost about $5.15 to collect refuse by this system. Collecting approximately 2½ tons per day in two trips, the cost per ton is $2.06, and with an average haul of about 2 miles the per ton-mile cost is $1.03. Figuring from an estimate of total cost and a fair share of the total tonnage hauled, the cost per ton is $3.06 and $1.53 per ton-mile. The discrepancy is to be partially explained by the fact that no collections were made on stormy days.

A further analysis of the horse maintenance expense shows that oats were purchased at 69 to 90 cents a bushel; corn at $6.50 a barrel; hay and straw at $16 a ton; and a commercial horse feed at $58 a ton. An average cost of 71½ cents each was paid for 281 shoes for the 5 horses.

Cost of Truck Maintenance

The total cost of maintaining the trucks was $3,151.18. Tires and tire repairs constituted $432.86; gas and oil amounted to $1,082.33; overhauling and repairs were $580.96; miscellaneous expenses were $64.03; and, finally, $991, one-half of the salary of an automobile mechanic, was charged to the Bureau of Garbage Collection. Figuring on a basis of 3 trucks in operation for a year of 300 productive days, the daily cost of maintaining a truck was $3.50, of which $1.20 went for gas and oil; 48 cents for tires;

65 cents for overhauling and repairs; $1.10 for salary of mechanic; and 7 cents for miscellaneous. At the rate of $200 depreciation, and interest to the amount of $50, a daily charge of 83 cents must be added. With $3.58 for the wages of the driver and $6.33 for two helpers, the total cost of collecting garbage by the truck system was $14.24 per day. Collecting 6 tons of refuse in 5 trips makes the cost per ton $2.37, and with an average haul of about 3 miles, the cost per ton-mile is 79 cents. Figuring from estimates of the total charges and the total tonnage actually hauled, the cost per ton is $3.09, and $1.03 per ton-mile.

A further analysis of the truck maintenance expense shows that tubes were purchased at about $3; tires averaged about $23 each; 30 x 5 tires were purchased new at $27.50, and 33 x 5 tires at $30.60. During the year 5,162 gallons of gasoline were used at a cost of $923.63, or an average price of 18 cents a gallon. A total of 253¾ gallons of oil was used at an average price of 62 cents.

Cost of Incineration

The refuse collected by the above system was burned in a Nye incinerator at a total cost of $4,767.68; of which $2,236 was for two men to operate the plant; $1,627.49 for repairs to the plant; $495.03 for coal; $284.16 for electric power to drive the forced-draft fans; $31.53 for light; and $93.47 for miscellaneous expense. This is a per-ton cost of 70 cents. A little over 111 tons of high-grade coal and 18 tons of slack were charged to the disposal plant. Collections totalling $1,007.47 were made by the disposal plant for burning dead animals.

Recent Reorganization of Collection Systems

At the present time the refuse collection system in Lexington has been completely reorganized. A system of six trailers with definite marked routes has been established. A record system of daily, monthly, and yearly reports of collections, mileage, and costs has been installed. With this system it should be possible to secure more efficient collections than under the old system. At any rate, accurate records will be available for the determination of unit costs.

Chicago Adopts Transit Unification Ordinance

THE tangled transit affairs of the second largest city in the United States have been simplified and clarified by the passage, at popular referendum on July 1, of an ordinance unifying the surface, elevated and bus lines into a single privately owned system. The vote was approximately five to one, but that the transit problem has been eliminated either from politics or from public consideration is not likely.

The ordinance grants to the company resulting from the authorized merger a franchise, described by the optimists as "terminable," by the realists as "indeterminate," and by the pessimists as "perpetual." On six months' notice the city can terminate the franchise—upon payment of the sum of $260,442,063.82 (the agreed-upon capital value as at August 31, 1929) plus the cost of all additions to the property since that date. The franchise provides tht at least $65,000,000 shall be expended for specified additions within the first three years, and $200,000,000 within the first ten years. Hence, to acquire the system, the city of Chicago would have to provide about one-half billion dollars, after ten years. The accomplishment of such a financial feat hardly seems likely, from the present outlook.

An alternative way of terminating the franchise is provided for, through purchase of the system by another private company. This would involve the furnishing of the same amount of money as in the case of purchase by the city, and, during the first ten years, a bonus starting at ten per cent and decreasing by one per cent each year.

The amount constituting the purchase price to the city is also to be the basis for determining the rate of fare, with certain differences in the handling of the renewal and depreciation fund that is provided for in the ordinance—quite sparingly, from a depreciation standpoint. The initial rates of fare are the same as at present—seven cents on the surface lines and ten cents on the elevated—with the new feature of transfer between the two, by the payment of three cents if necessary to make the total fare ten cents. This additional privilege for the car rider may be offset by a reduction in surface lines entering the central district.

It is hoped that a local transit commission, presumably of three members appointed by the mayor, will be authorized by statute, to take over from the Illinois Commerce Commission the regulation of fares and service. This commission is required, under the ordinance, to fix fares high enough to give the company a "just and reasonable return" on the capital value, determined as stated above. A ten-cent fare for rapid transit seems fairly high, but as the company's earnings, in relation to the initial capital value, have lately represented a smaller percentage than is frequently granted by courts and commissions, it seems doubtful whether the ten-cent fare will be sufficient, especially after the heavy program of extensions has been carried out. The ordinance has the virtue of providing a definite capital value or rate base, but much dissatisfaction has been expressed with regard to the amount with which it starts, it being claimed that the $260,000,000 includes a considerable amount of property long superseded but still represented by securities.

The old transit fund of over $60,000,000, which had been accumulated under the 1907 ordinance by allotting to the city 55 per cent of the net earnings of the surface lines, and which was for the purpose of allowing the city to acquire these, is to form the basis for a new fund to which three per cent of the gross earnings of the system (if available after payment of bond interest and preferred dividends) is to accrue. This fund, aside from meeting the salaries and expenses of the Transit Commission, is to be used, along with special assessments upon benefited property, for the construction of subways, which will be operated by the company as part of the unified system. If anything remains of the fund, it may be applied "to complete the final purchase of the property of the company."

A considerable utilization of motor busses is provided for as alternative to street-railway lines, and it is understood that the trolley bus, or electric coach, will be employed to considerable extent.

The chief virtue of the franchise is that it does provide a settlement upon the basis of which much-needed extensions of the transit system can be commenced. The campaign largely featured this point, and the fact that it provides employment for many men over a considerable period. The city government, as may well be supposed, was in no position financially or administratively to undertake a thoroughgoing municipal ownership project, such as had once been the city's policy; the field was therefore left to the most powerful and active private interests. The citizens voted for the ordinance rather than leave the transit muddle unsettled. How much actual settlement is represented by the new franchise remains to be seen, for, while valuations are fixed thereby, the rate of fare is not; and it is doubtful whether a city or state commission attempting to regulate a utility monopoly more powerful than had previously existed, can keep utility matters out of "politics" as well as if the city were doing the whole job itself.

State Highways Need Sidewalks

THE Portland Cement Association calls attention to Act. No. 74 of the New Jersey Laws of 1930, as of special significance to the fortunately not yet extinct pedestrian.

The gist of the law is that New Jersey's State Highway Commission may build sidewalks along state highways. Two other states, Delaware and West Virginia, have made such provisions, according to a survey recently conducted by the Association, to which 36 states replied. Only about a third of the states have provisions for permitting towns and counties to build country walkways even at their own expense.

Here is a subject which merits careful consideration in the 1931 legislative program of many states.

FORWARD STEPS

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Municipal Parking Area Provides Relief for Downtown Streets

DIXON, ILL.—Among the problems besetting the American city at present, few are more acute than those that are the direct result of the multiplication of motor cars. As far as the market for motors is concerned, there is, seemingly, no real or anticipated "saturation point," but many cities have already reached the "saturation point" in their ability to take care of the multitude of cars which fill the streets and clamor for parking space.

Wider streets and boulevards, grade separations at congested intersections, and one-way streets, are factors in the solution of the traffic problem; but relatively little civic enterprise, it seems to me, has gone into the solving of the parking problem.

Individual groups and concerns have of course undertaken to meet the demand for parking space in many localities. Huge parking garages have been built, unoccupied ground in or near business centers has been rented and exploited as parking space, at so much per day or hour. But relatively little has been done by the cities themselves to provide parking space for the motoring citizenry.

It seems logical that a city which makes an effort to provide for the safe and efficient movement of traffic on its streets should likewise make some provision for the parking of cars while their owners transact their business.

Two years ago the city of Dixon, acting on this principle, decided to develop and make use of two pieces of city property close to the business section. On the banks of the Rock River, on either side of the Galena Street bridge over the Rock River, were two strips of land, each about 75 feet deep, and totalling about three blocks in length. The location was ideal for a parking area; also it was apparent that developing the land would considerably improve the appearance of the waterfront.

In order to make the parking space of the greatest possible utility in all kinds of weather, it was seen, a pavement of some sort was necessary; otherwise, mud, dirt and dust would combine to defeat the primary purpose of the parking area and motorists would continue to battle for curb space along the paved streets.

Hence, two concrete strips were put down. On the east side of the bridge the pavement measures 250 by 60 feet, including a wide drive. To the west of the bridge the pavement is longer and narrower, 300 by 30 feet. The concrete was of simple slab construction, 6 inches thick. As most of the cars using it are of the ordinary passenger-car type, this thickness has proved satisfactory.

In all, about 200 cars can be parked on the parking pavement. Should this number of cars attempt to find parking space along the streets of the city, considerably more than half a mile of curb space would be required.

Naturally, with parking congestion thus relieved, the movement of cars through the business section has been greatly facilitated. Shoppers ordinarily find little trouble in parking in front of a store, a fact which is greatly appreciated by the merchants. Should it ever become necessary, in the interests of traffic, to eliminate curb parking altogether, the central location of the city's parking space would make little or no difference in the convenience of parking arrangements.

FRANK D. PALMER,
Mayor.

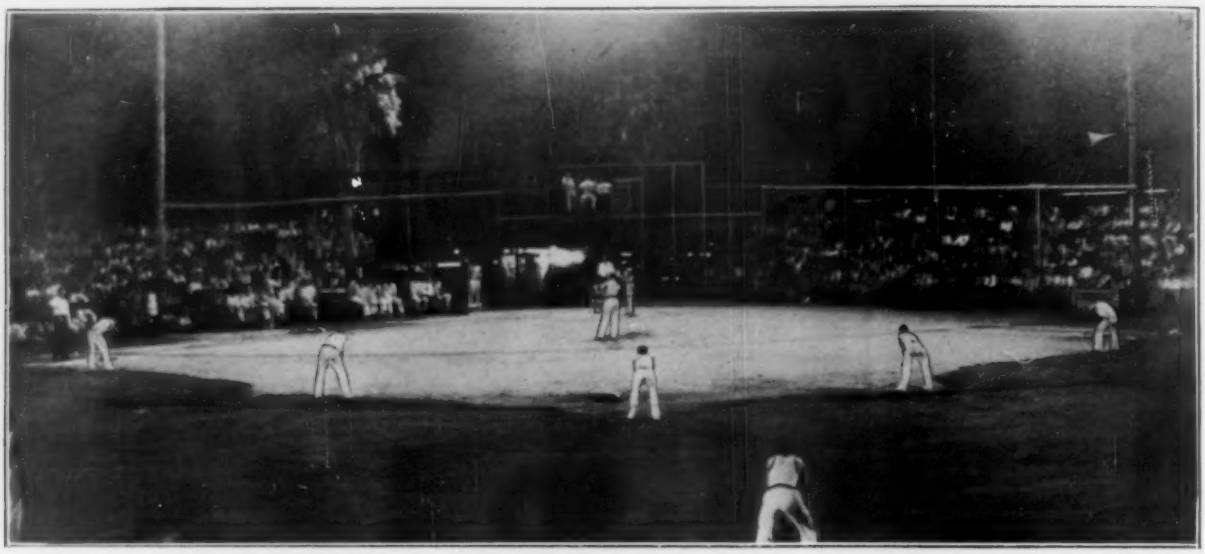
DIXON'S MUNICIPAL PARKING AREA

(Above) A comprehensive view showing the pavement extending on both sides of the bridge. The small building in the center of the stretch is the headquarters of the Chamber of Commerce. It contains comfort stations, an information bureau for tourists and other facilities for the convenience of citizens and visitors

(Right) A part of the area, fronting on the Rock River at the foot of the city's main business street

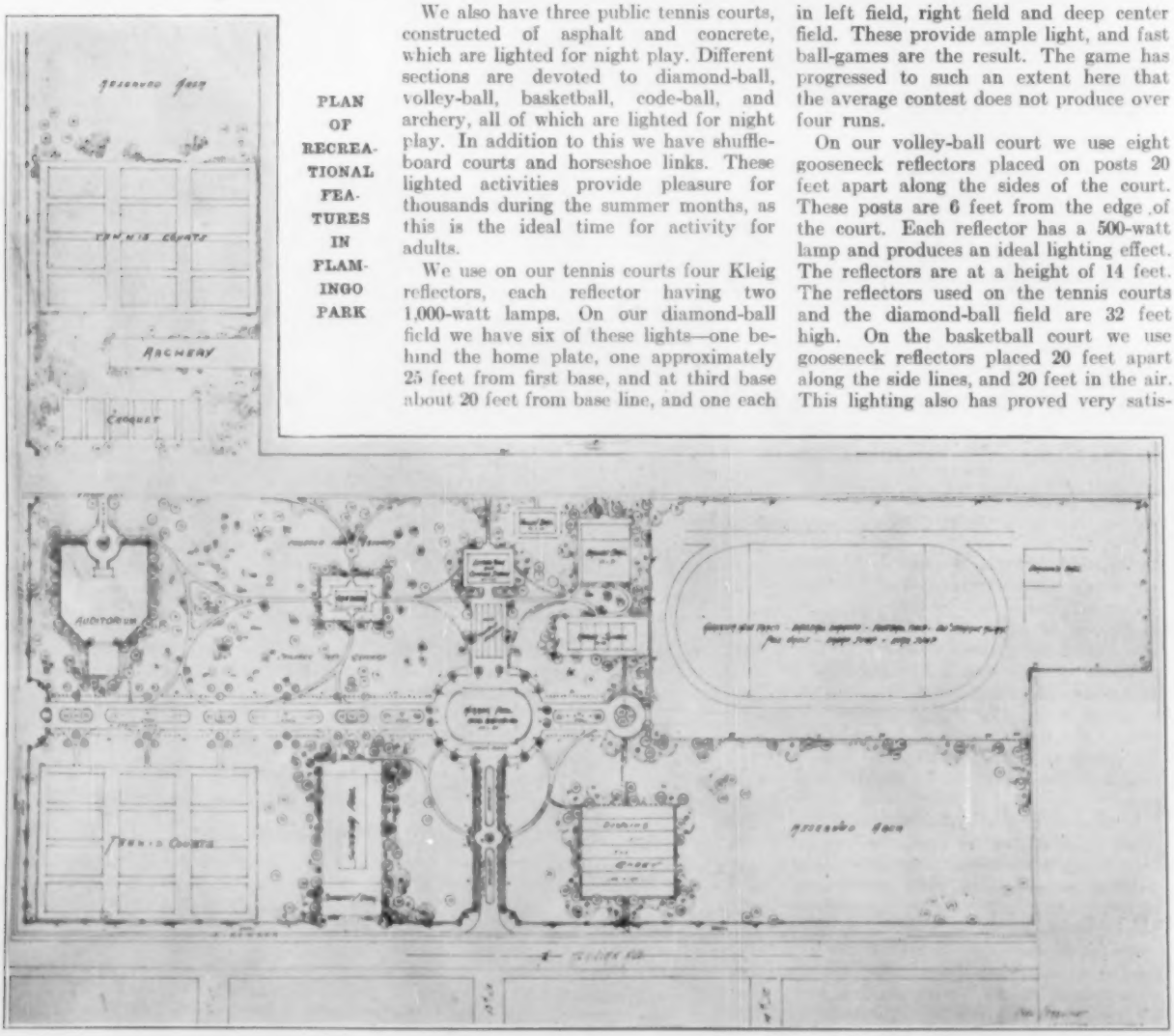
An Extensive Outdoor Recreation Center for Day and Night Use

MIAMI BEACH, FLA.—Flamingo Park is a 60-acre plot of ground being developed as a community recreation center by this city, which stands all cost of the entertainment facilities therein. They include a municipal bandstand with seats for 1,500, which also houses a remote-control broadcasting station for WIOD.



DIAMOND-BALL PLAYED UNDER FLOODLIGHTS IN FLAMINGO PARK, MIAMI BEACH, FLA.

Average attendance per night, 1,500. The games are so popular that they are broadcast and hundreds of letters from all over the country have been received. A state tournament was held last year, with over 6,000 seeing the final game



PLAN OF RECREATIONAL FEATURES IN FLAMINGO PARK

We also have three public tennis courts, constructed of asphalt and concrete, which are lighted for night play. Different sections are devoted to diamond-ball, volley-ball, basketball, code-ball, and archery, all of which are lighted for night play. In addition to this we have shuffle-board courts and horseshoe links. These lighted activities provide pleasure for thousands during the summer months, as this is the ideal time for activity for adults.

We use on our tennis courts four Kleig reflectors, each reflector having two 1,000-watt lamps. On our diamond-ball field we have six of these lights—one behind the home plate, one approximately 25 feet from first base, and at third base about 20 feet from base line, and one each in left field, right field and deep center field. These provide ample light, and fast ball-games are the result. The game has progressed to such an extent here that the average contest does not produce over four runs.

On our volley-ball court we use eight gooseneck reflectors placed on posts 20 feet apart along the sides of the court. These posts are 6 feet from the edge of the court. Each reflector has a 500-watt lamp and produces an ideal lighting effect. The reflectors are at a height of 14 feet. The reflectors used on the tennis courts and the diamond-ball field are 32 feet high. On the basketball court we use gooseneck reflectors placed 20 feet apart along the side lines, and 20 feet in the air. This lighting also has proved very satis-

factory for facilitating playing at night.

We are planning a big extension program during the next five years, which includes 36 tennis courts, swimming pools, athletic fields, baseball diamond and athletic track, and numerous other sports such as archery, roque, croquet, code-ball, etc. We are starting this summer an extensive landscaping and beautification plan, and are striving to make Flamingo Park the most completely equipped recreation center in America.

J. B. LEMON,
Director of Recreation.

Cooperation Builds Baseball Diamond

VERMILION, S. DAK.—Two tractors and five members of a Vermilion American Legion post cooperated on Sunday morning, May 18, to level a ball diamond in a new ten-acre addition to Prentis Park. Three weeks of intermittent rain, during which more than six inches of water fell, had made the ground sticky. It was a new seeding of oats and free from stones.

Recently the city of Vermilion purchased a Caterpillar Ten. This was furnished along with a scraper and driver. Clay County furnished a Caterpillar Fifteen with scraper and Russell grader. Among the men on the job were: Dr. Carl Viers, Mayor; B. J. Skordahl, Vice-Commander of the American Legion of South Dakota, who is the Clay County Highway Superintendent; O. R. Stride, Alderman, and Henry Bergman, driver of the county tractor—a real artist at the job, having had years of experience.

Much dirt was moved in three hours to level the in-field. When the tumble-bug scrapers had done their work, the grader was worked over the area with satisfactory results. By noon the rain, which had been falling for some time, made it necessary to suspend operations for the day. Even so, more work had been done with a small crew as a result of modern methods than would have been possible in any other way.

D. A. CALDWELL.

CARING FOR THE MUNICIPAL ORANGE GROVE AT AUBURNDALE, PA.

WORKING ON THE NEW BALL FIELD AT VERMILION, S. DAK.
The building in the background is the bathhouse of the new municipal swimming pool. See the 1930 Municipal Index, page 509

Municipal Consolidation Urged by Chamber of Commerce

TARRYTOWN, N. Y.—For over fifty years the two villages of Tarrytown and North Tarrytown, N. Y., have carried on their separate municipal functions. These villages are so close together that a stranger is never certain whether he is in Tarrytown or North Tarrytown. It has been obvious that for all practical purposes the administration of the villages could be handled to much better advantage under one government.

At least three times in the past fifty years, however, a consolidation of the villages has been attempted and has failed largely because of political opposition. The Chamber of Commerce of Irvington, Tarrytown and North Tarrytown has been devoting a great deal of attention to this subject during the past year, and if the plans of the organization bear fruit, the Tarrytowns will lose their separate identity and merge into the city of Tarrytown.

The local organization several months ago employed the National Bureau of Municipal Research of New York City to make a survey of the advisability of consolidating Tarrytown and North Tarrytown, and the report of this Bureau was an unqualified statement in favor of consolidation.

At the present time a Charter Committee is at work preparing a charter for the proposed city, and indications point to the city manager form of government. An educational campaign is also being planned, in addition to a canvass of every citizen of the community.

J. WILBUR RIKER,
Secretary, Chamber of Commerce of Irvington, Tarrytown and North Tarrytown.

Taken for Taxes, This Orange Grove Provides Work for City Debtors and Promises to Be a City Money-Maker

AUBURNDALE, FLA.—On account of the failure of development companies in Auburndale to pay their municipal taxes, and to resulting shortages in our treasury, this city was recently forced to institute March 3, 1930, by order of the Court, approximately 210 acres of in-town improved, citrus-bearing land which had been laid out for subdivision development passed into the hands of the municipality. Because of real-estate activity, the trees had been neglected, and the groves were in need of care. We did not have city employees to do the work necessary to putting them in good bearing condition; and it became necessary for us to work out some plan whereby the work could be done without financial outlay. Proposals were therefore made to citizens in debt to the city to work out their indebtedness on the municipal groves. Being an experienced orange-grower, I undertook the supervision of the work myself. Citizens, who entered heartily into the plan, were given vouchers for time spent at work.

Several of the groves will pay dividends into the city treasury with the next crop, and we believe that all the groves will pay during the next two years. We anticipate no loss whatever, since the crops from the first will bear enough to pay all expenses.

The value of the groves had materially depreciated under private ownership. Under municipal ownership the values are rapidly increasing, and we believe they will net a satisfactory profit at such time as they are divided into building lots and placed on the market. They are within the city limits, in a section where much street improvement work has been done, and for the most part are beautifully located. A large portion of the land lies adjacent to or close by some of the beautiful lakes for which our city is noted.

D. P. NUNN,
City Manager

Guarding School Children in a Heavy-Traffic Area

CHELSEA, MASS.—Chelsea is the first city in Massachusetts to try out a junior traffic patrol on a systematic plan. Through the efforts of police and school authorities, the patrol has been organized throughout the school system and is working very successfully. The situation created here when 12,000 school children poured out onto the heavily congested streets at one time, was a menace to life and limb.

Chelsea is approximately two and one-half square miles in area, and is the so-called neck of the bottle of the Metropolitan District, through which the greatest bulk of vehicular traffic passes on its way to cities north of Boston. It had a serious condition to overcome to approach anything like a school-child traffic safety program.

Under the supervision of the teachers, at the appointed time, the children march in pairs out of the school. Boys are delegated as junior traffic officers and, bearing red pennants with the word "stop," halt traffic until a group of children have safely crossed. This eliminates the need of additional traffic officers for the fourteen schools.

All credit is due to the Chief of the Police Department, Charles M. Finn, and to George C. Francis, Superintendent of Schools, who have instituted this project.

HYMAN KAPLAN,
Secretary, Chelsea Chamber of Commerce.

Decatur Develops Water-Works Property as a Community Playground

DECATUR, ILL.—Our new city recreation area, to be known as Water-Works Park, is almost completed. We have already planted many beautiful elm and tulip trees, and shrubbery and hardy perennials in quantity. One of the chief attractions of the park is an electrical fountain which is said to have been built three years before the World's Fair at Philadelphia. This was bought by a Decatur citizen and placed in our Central Park. It gave good service until within the last two years, when it had begun to develop weaknesses. Where the pieces had been strapped together with iron or steel, the straps had rusted and become loose, throwing weight on the heavy cast iron parts and affecting the play of the water. We have completely rebuilt this fountain, using the same cast iron parts and equipping it with a more modern spray and a large cement bowl, also with apparatus for a changing play of colored electric light. The fountain is as attractive and as good as the day it was set up at the World's Fair in Philadelphia, proving, to me, at least, that for permanent structures of this kind you cannot beat cast iron.

Another attraction is a bird-house of 20 apartments, planned to house martins. The donor of this gift guarantees tenants in 36 hours after completion of the structure; and we have been very much amused to see how the birds come and sit on the wires around the water-works plant and watch the work going on.

We have also installed swings and have built two new rest rooms for men and for women, also providing tables and chairs for luncheon parties. We are fortunate to have this park located between two dams with excellent fishing within 50 feet of the children's playgrounds. It is not unusual to see a fisherman land a 30-pound catfish here.

EARL V. SMITH,
Commissioner of Public Property.

Multiplying Hollyhocks

SIOUX CITY, IOWA.—The hollyhock was made the official flower of Sioux City by action of the City Council last year, and all citizens were urged to plant it freely. Naturally, most of the planting has been done on private property, and a very generous response to the official request has been made. The Mayor planted about half a mile of hollyhocks last year along one of the main roads leading to the city. Other property owners have planted rows of seeds along the side lot lines, and several filling-stations have used the flower on their properties. The railroads have been urged to plant along the rights-of-way. It is thought that the use of the hollyhock will increase greatly this year, as last year saw only the beginning of the effort. This year a hollyhock contest according to school districts is being conducted by the Garden Club and the *Sioux City Journal*. A general chairman for the city and sub-chairmen for the various districts have been appointed, and school children are being interested in the contest. Junior Garden Clubs are being formed to plant vacant lots, and it is thought about a hundred such clubs will be organized.

E. A. FIELDS,
Chairman, Sioux City Plan Commission.

Merchants Cooperate to Provide Free Off-Street Parking Facilities

MILWAUKEE, WIS.—East Side Association, Inc., having for its members a number of Milwaukee's leading downtown business men, has devised a means for securing free parking for the patrons of the various stores and business houses located within the boundaries of the Association's territory.

By means of the plan, all business and professional interests within the territory covered by the East Side Association are entitled to buy and give away parking stamps. One stamp, good for one-hour parking, is to be given to the patron on request. This stamp must be pasted on the back of the parking check when presented to the parking-station attendant.

The patron can obtain additional stamps by patronizing more than one store in the district. Four stamps on the client's check entitled him to a full day of free parking at any of the nine parking stations in the immediate vicinity of the territory selected by the Association.

Stamps are sold to merchants and professional men for cash in units of 33 stamps for $5.25, which is slightly less than 16 cents each. With neighborhood stores in Milwaukee constantly advertising unlimited parking privileges, the downtown merchant has been obliged to find some means to prevent his business from going to the outlying sections of the city.

All Milwaukee's leading department stores maintain parking stations immediately adjacent to their stores for the convenience of their patrons. For the smaller merchants, however, who independently cannot afford to give this service to his patrons, this plan of the East Side Association has proved a boon.

H. C. BRUNNER.

Chosen as Site for Veterans' Hospital

WACO, TEXAS.—The selection of this city for the United States veterans' hospital for Texas, as definitely settled on July 9, marks another step in Waco's progress. This follows closely upon the completion of the new dam and water-supply reservoir (Lake Waco), the new municipal building, Waco Hall at Baylor University, and various commercial buildings, and the coming of two large additional industrial plants.

Waco was chosen after a two-year survey of 22 competing Texas cities by the Federal Hospitalization Board. Its splendid climatic and health conditions, its central location, both geographically and as to population, and its adequate size as well, contributed to its selection. Transportation facilities are excellent by air and highway as well as by rail, and the county has started an $8,000,000 road program.

The hospital will occupy a 500-acre tract and will contain room for at least 300 patients. Accommodations will be increased as future demands make necessary. The plans should be completed in a few months, bids for the work to be advertised within four to six months from now. Besides the various buildings there will be gardens and recreational features.

W. V. CRAWFORD,
Vice-President and General Manager,
Waco Chamber of Commerce.

Empty Jail Remodeled for Council Meetings

NEOSHO RAPIDS, KANS.—The city jail has been unused for so long that it has recently been moved to a new location and remodeled for use as a meeting-place for the City Council, which previously had no place of its own for this purpose. The jail was formerly located in one of the alleys, as the city did not own any lots at the time the jail was built. Later, in settlement of a drainage damage suit, the city bought a lot that was crossed by a ditch draining part of Main Street, and it was decided to move the jail building to this lot and use it as a City Hall.

It provides a meeting-room 12 feet long and 8 feet wide, which has been given a cement floor, plastered walls and a wallboard ceiling. It has been equipped with electric light. The outside of the building has been painted white, instead of the former red, and a new shingle roof has been put on. The remodeling was done at a total cost of $62.82 for labor and material. Bars have been left on the windows, and the door is furnished with a good lock, for emergency purposes.

HARVEY WALZ,
City Clerk.

Municipal Housekeeping—III

The Problem of Caring for the City's Wastes—Garbage, Ashes, Refuse and Street Cleaning

By JOHN H. NUTTALL
CONSULTING ENGINEER,
PHILADELPHIA, PA.

Disposal by Reduction

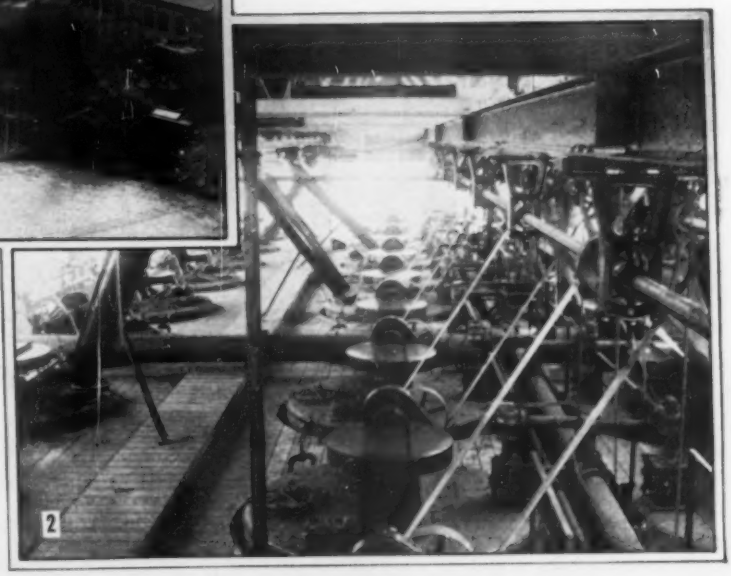
GARBAGE contains approximateiy 3 per cent of grease, which may be extracted by the reduction process. The grease is used in the manufacture of soap and candles, and the process leaves a residue of solid material that is used as a base for fertilizer. Glycerin is separated from the grease in soap making. Several processes are in use. The grease may be extracted by solvents such as naphtha from macerated garbage, or separated by cooking in immense steam kettles or digestors. Several large plants pass the garbage through the cooking process, and afterward through percolators containing the solvents, and thus extract a larger per cent of grease. A reduction plant contains intricate machinery and requires a large outlay of capital, but can be run at a substantial profit if well managed. A garbage-reduction plant may be run without odors if carefuly operated and equipped with deodorizing apparatus, but many plants are offensive and operated at a loss.

Reclaiming Rubbish

Rubbish has practically no value as a whole if its small value as a fuel is excepted, but the constituents are valuable as reclaimed material when separated. Paper is converted into pulp and used for new paper; rags are cleaned and used for wipers or rag rugs, and the best paper may be made from rags converted into pulp; rubber is combined with a percentage of new rubber and reused; bottles are used for their original purpose or melted to make glass; metals are melted and re-used; and cans are melted for rough iron after the tin covering has been removed from them. The tin is used for retinning or in chemical form for dyeing and weighting silk. Many other materials may be converted into substitutes for new raw materials.

Junkmen purchase paper, rags, and metals from dwellers in every city, and usually combine purchasing with picking from the refuse receptacles. It is said that fortunes have been made by several laborers who conducted the reclamation of rubbish upon a dump.

The reclamation of rubbish is conducted best upon a large scale in a reclamation plant. A plant consists of a long, narrow building through which passes a long, wide belt upon rollers with guard-rails upon each side. The rubbish is dumped upon the end of the belt, and passes between a double row of pickers, usually women, who remove



Courtesy of C. O. Bartlett & Snow Co.

THE GARBAGE REDUCTION PLANT AT ROCHESTER, N. Y.

1. This is an improved type of plant and can be operated without odors or other annoyance. 2. The garbage is treated with live steam in these digesters until all the vegetable cells are opened and the grease is released

the various materials from it. Paper is picked first, then cans, bottles, metals, rags, rubber and leather may be picked in different order in various plants. The worthless residue passes from the end of the belt into a furnace where it is burned to produce steam for use in the plant.

The various materials are thrown behind the pickers into bins from which they are carried or chuted to a floor below for baling and packing. Paper and cans are baled, bottles are sorted into various classes and boxed, broken glass is sorted into various colors, and metals are segregated into certain commercial classes and grades. The reclaimed materials are stored until a favorable price is received, and are then sold.

Reclamation is a desirable method of disposing of rubbish, as it is cheapest and leaves the most compact residue of any method excepting European high-temperature incineration. It is not practical in a small town or in any city where there is not a continuous market for the salvaged goods, as storage and freight charges are sufficient to convert a profit into a loss. A well-managed reclamation plant will usually be profitable.

Reclamation in Europe

Salvage or reclamation is carried to an extreme in England and France. The mixed refuse, which is far less rich in valuable constituents than our rubbish, is screened to remove the fine dust, which is sold as fertilizer or dumped on waste lands. The large clinkers are then screened out and sold as low-grade fuel, or burned in an incinerator to produce power. The remaining material is then passed on a belt and the paper, rags, cans, metals and other articles are picked from it. Magnetic separators to remove the cans, and pneumatic separators to remove the paper, are used in the most recent plants. The remaining material is burned in an incinerator to produce steam which is used to produce electric power for plant operations. Any surplus power is sold. The clinker resulting from the incineration is crushed and sold for broken stone and sand when possible.

Competent Engineering Supervision Necessary at Disposal Plants

The design, construction and operation of the disposal facilities of a large city call for a wide knowledge of the physical and chemical properties of refuse, a thorough knowledge of combustion and mechanics, an acquaintance with cost-finding and modern business procedure, and the ability to produce results when hampered by municipal red tape and the local politicians. It is difficult to secure competent engineers for the limited compensation and on account of the annoyances of municipal employment, and our disposal plants are usually operated inefficiently for this reason.

Street Refuse

The municipality must remove and dispose of the refuse formed upon the streets as well as that produced within the dwellings. The average city possesses between twenty and thirty square yards of roadway and sidewalk paving for each inhabitant, which is practically the area of the floors of the average dwelling allotted to each person if the average family consists of five people. The city must therefore clean an area equal to that of all the dwellings within it.

The city must clean the streets, as the housekeeper cleans her floors, but under far more unfavorable conditions. Dirt forms on the streets from many more sources than on the private floors, and must be removed under the handicaps of traffic, rain, snow, heat, cold and ice. The careful mother finds difficulty in preventing one small child from littering the floor, and one husband from dropping his ashes upon her rugs, but there is usually less than one policeman to prevent each two hundred people from littering the streets of a city, in addition to his other duties of preventing more serious crime and attending to his political responsibilities. It is not strange that dirt accumulates on some streets in our larger cities almost as quickly as it can be removed.

Sources of Street Dirt

The quantity of dirt precipitated upon the streets from the atmosphere can be realized by one who has noted the dust in a closed house that has not been cleaned for a few days. Strong winds often pile sand in the streets of cities adjacent to sandy soil, and heavy rains wash quantities of dirt upon the streets from unpaved roads and yards. Automobile tires, car treads, and the shoes of pedestrians wear constantly and leave the abraded material upon the streets. Pavements wear and disintegrate and the resulting dirt must be removed, and trees shed leaves and boughs are broken by high winds. Dirt such as this cannot be prevented and must be removed along with the larger quantities of unnecessary material.

Preventable Street Dirt

Most of the refuse upon our streets originates from the carelessness and indifference of our citizens. Poorly bundled rubbish is scattered by wind, animals, children and junk pickers, and ashes are blown about from broken and uncovered receptacles. Handbills are blown from doorways and porches, and programs, newspapers, ticket stubs, transfers, paper bags, cigar and cigarette butts, matches, chewing gum and fruit peels are discarded by pedestrians and motorists. Refuse cans are placed upon our streets to receive this litter, but few take the trouble to use them, unless, as is rare, the prohibitive ordinances are enforced by an efficient police force. Refuse from stores and dwellings is swept into the streets, and merchants throw packing material, vegetable refuse and broken boxes in the gutters. Useless malicious acts scatter broken glass from street lamps on the pavements, and our elections are celebrated by street fires that damage the pavements as well as leaving material that must be removed.

Danger from Accumulations

Large articles and visible dirt are

PICKING RUBBISH FROM THE BELT AT THE MUNICIPAL RECLAMATION PLANT, WASHINGTON, D. C.
Colored women are used for this work and many typical mammies are found there

HERE'S WHERE A LOT OF THE DIRT ON STREETS COMES FROM

1. Building-material is a frequent source of dirt on the streets, owing to poor police attention. 2. A curb market in a large northern city. Dirt was thrown on this street more quickly than it could be removed by a battalion of white wings

offensive to our sense of cleanliness and order, fine dust carries germs, soils clothing, draperies and merchandise, and irritates the eyes. Sharp glass, nails, and wires perforate automobile tires and injure horses' hoofs, and mud dirties clothes, shoes and building fronts, and dulls vehicle enamels. This material must be removed eventually or the streets of our cities would gradually rise above the surrounding properties.

Another form of dirt that is less noticeable is a film of fine dust mixed with oil from motors and moisture from the air that adheres to the surface of the pavements. It is not perceptible in dry weather but becomes a slippery emulsion in humid or misty weather and causes dangerous skidding.

The Beginnings of Street Cleaning

Refuse can be removed from the streets by many methods. Street cleaning was probably started in America by Benjamin Franklin, who persuaded several Philadelphia storekeepers to subscribe the wages for a man to sweep the crossings in front of their stores. Street cleaning was performed for many years in European and American cities by poor men and women who solicited a fee from pedestrians for sweeping a path for them. The street sweeper is a familiar character in English fiction.

The streets in our cities were paved first with round water-worn stones called cobbles, and with roughly broken stones called rubble. These pavements were rough and could be cleaned only by sweeping with coarse hand brooms.

Small stone blocks, called Belgian blocks, were laid later to form a pavement which was smooth at first but roughened in a few years as the blocks rounded at the edges. Many of these pavements, and similar pavements of larger blocks, exist today in our older cities. These streets were smooth enough to permit the use of horse-drawn machine brooms preceded by a sprinkler to allay the dust of cleaning. A machine broom consists of a rotary broom mounted on four wheels and made to revolve by gearing from the back wheels. The revolving broom throws the dirt into the gutter, where it is swept into piles by laborers with push-brooms, and then loaded into vehicles with shovels. This method of cleaning is still in use on rough streets with much dirt.

Asphalt streets were first constructed in America about sixty years ago, and there is now a larger area of this pavement than of any other type. Smooth brick and stone block paving followed and the streets of the modern city now have smooth, hard surfaces that may be cleaned thoroughly with improved equipment. A concrete surface is the smoothest and densest, but is not favored in cities, because it is difficult to secure an unbroken surface after ditches have been made to repair water, gas and sewer pipes.

The automobile is responsible for the construction of the present excellent streets and roads, and is also the reason for the disappearance of the horse and the insanitary bodily wastes dropped by that animal. Horse manure does not comprise more than one per cent of the street refuse of the present.

The automobile accompanied an era of great prosperity, which is reflected in the large quantities of household and street refuse produced. It preceded the present demand for greater sanitation, reflected in sanitary codes and improved municipal methods.

The problem in street cleaning is to remove and dispose of large objects, fine dirt, and the oily film upon the surface of the streets.

The Machine Broom and the Squeegee

The machine broom will remove large objects, but leaves much of the fine dirt and all of the oily film behind. When smooth pavements became common, a demand arose for cleaner surfaces than were produced by broom cleaning, and the squeegee was introduced. This consists of a tank mounted upon four wheels, drawn by horses. A rotary cylindrical spindle with rubber fins upon it is mounted beneath the tank and made to revolve by gears from the rear wheels in the manner of the machine broom. Water drips from the tank in front of the squeegee, and the street surface is scrubbed. The squeegee is excellent on perfectly smooth streets, but leaves deposits of dirt in slight depressions.

The Flusher

The flusher was introduced at approximately the same time as the squeegee,

Courtesy of Charles Hvass & Co.

A FOUR-WHEEL DOUBLE UNIT FLUSHER IN WHICH THE PUMP IS DRIVEN BY A SEPARATE ENGINE FROM THE VEHICLE

but has increased in popularity while the squeegee has declined. It consists of a tank holding from 1,000 to 3,000 gallons of water, mounted upon a truck of the proper size. A motor-driven pump jets water upon the pavement from expertly designed nozzles mounted at the proper angle to clean most effectively. The water leaves the nozzles in a flat sheet, and the street is thoroughly washed. Large objects such as planks and bricks, and the fine dust and oily film, are removed from the street and impelled to the gutter. The film is softened by water, and flushers work best in rainy weather for this reason, although many ill-informed citizens protest the practice under the impression that the flusher is simply sprinkling and that the public money is being wasted. The material left in the gutter is piled by laborers after the water has run off. The flusher is the cheapest and most thorough method of cleaning street surfaces, hose flushing being more expensive, and is the only cleaning equipment that can clean under parked cars.

Mechanical Type Cleaners

Mechanical cleaners comprising a rotary surface broom, a vertical gutter broom, a sprinkling tank, and a hopper to contain the dirt, are used in many of the smaller cities. The dirt along the gutter is swept into the path of the large broom by the vertical broom, and thrown upon a conveyor on which it is elevated to the hopper. The machine may be run to the dump and the hopper dumped. These machines are not used as extensively in large cities as other types of equipment because of the heavy traffic. They are used principally in the smaller cities where streets are not subject to heavy traffic, and where the amount of street dirt is not so great. A so-called vacuum type of street sweeper is similar in some respects, excepting that fine dust is blown into the hopper by a strong current of air.

Hose Gangs

Hose gangs of men who play a hose upon the street are used in many cities where water is plentiful, and in other cities to clean streets too narrow to be flushed. The most perfect cleaning may be performed with these gangs, but the method wastes water and is expensive.

Hand Labor Necessary

These methods are used to clean large areas of pavement at regular intervals, but refuse is thrown so continually upon many streets that the surface is littered immediately after it has been cleaned. Laborers patrolling a definite limited area are used to remove the litter between the regular cleanings. These men are termed "patrolmen," "blockmen" or "White Wings" in various cities and are usually equipped with a wheeled cart carrying a bag or can. They are used in some cities to clean the streets without the aid of machine-gang cleaning, but this method is expensive and inefficient.

The real cleaning is performed by the machine broom, squeegee or flusher gangs, but these pass a given point so quickly that many citizens are unaware that such methods are employed, and believe that the blockman is the sole cleaning agency. The removal of a blockman is always followed by complaints from residents that the street is not being cleaned, although actual cleaning may be performed daily. The amount of dirt gathered per man in a machine-equipped gang is often ten times that collected by the average blockman.

Modern Street Cleaning Is Efficient

The work of street cleaning is performed in the progressive modern city in a highly efficient manner. Machine-equipped gangs operate over carefully designed routes that are equal in daily area. Flushers operate in double shifts on schedules as definite as those of an express train. Careful records of the work performed by each unit of the organization are maintained and compared to determine the relative efficiency. Any inefficiency indicated in any part of the organization is checked at once by an engineering division and the fault located and remedied.

Disposal of Street Refuse

The disposal of street refuse in a sanitary manner is difficult, as it contains too much mineral matter to burn, too much organic matter to be sanitary fill-

TYPE OF SIX-WHEEL TRACTOR TRAILER FLUSHERS USED IN CLEVELAND, OHIO
Flusher equipment by Municipal Supply Co., and trailer equipment by the Highway Trailer Co.

ing material, and the litter in it is too soiled to repay separation. It is universally dumped on land or water at the present, but it is likely that the mineral matter will be screened from it and the residue burned when refuse removal has reached the stage where sufficient funds are provided for actually sanitary processes.

Quantity of Refuse

The quantity of refuse and the work necessary to remove it are enormous. A city of two million people, in which conditions resemble those in the average American city rather than in our other great cities, may be used as an illustration. Each man, woman and child produced 211 pounds of garbage, or a total of 220,000 tons in 1928. Collections were made three times per week from each of the 420,000 dwellings, which entailed the emptying of 65,520,000 receptacles; 758 days would be required to merely count this number at the rate of one per second, and the efficiency with which the work is performed may be seen by the fact that less than twelve complaints were received daily.

Ashes and rubbish are mixed in this city, and 828,000 tons of the combined materials were collected, representing 676 pounds of ashes and 116 pounds of rubbish per capita. Collection was made weekly from each dwelling, and it is estimated that three receptacles were emptied at each stop, entailing an equal number to those for garbage and of a far greater average weight. A total of 708,000 tons of ashes were included in the mixed refuse, and as 30 per cent of the weight of ashes is unburned coal, they represent a waste of 212,000 tons of coal, or $3,186,120 at $15 per ton.

About 304,000 tons of refuse were removed from the 25,000,000 square yards of street paving, or 291 pounds for each inhabitant. Some streets were cleaned daily, others three times per week, and a few only twice per week, and the average number of cleanings was 165. This is equivalent to cleaning all dwellings that number of times, but the housekeeper can realize that there is far more dirt to be removed from a street than from a floor.

The combined weight of household refuse and street dirt collected in 1928 was 1,354,000 tons, or 1,295 pounds for each resident. This amount of material would bury every street in the city to a depth of 38 feet, if produced each year and not removed for a century. It would form a pile as large as the great pyramid, which is said to have taken the labor of 100,000 men for 20 years. It would fill 270,800 5-ton trucks; 27,080 large freight cars; or 271 ocean-going freight steamships. This material was hauled an average distance of 3 miles to places of disposal. A man carrying 100 pounds would require two hours for a round trip to the dump, and at this rate would consume 54,148,880 hours, 2,256,206 14-hour days, or 6,181 years, to transport this refuse. Adam would be still working at the job had he started a similar task.

Cost Only One Cent Per Capita Per Service Per Day

The cost of refuse removal and street cleaning was less than $7,500,000, or $3.75 per capita, for which garbage was collected from each dwelling 156 times; ashes and rubbish were removed 52 times; and the street was cleaned 165 times, or almost exactly one cent per service per person. The housewife who spends many times this amount for less domestic cleaning and similar work must realize the efficiency with which the work is performed at so small a cost in spite of extravagances due to political control.

A TYPICAL PATROLMAN OR WHITE WING
This method of street cleaning was the earliest type, but is still in favor

The Cleaning Organization

The organization for performing these municipal duties that corresponds most closely to the work in a private home is termed the Department or Bureau of Refuse, Sanitation, or Street Cleaning. In England it is called the Cleansing Department and, in all seriousness is also in charge of the public baths. A department implies an organization whose head reports directly to the mayor, and a bureau is a subordinate division of a department.

The refuse organization is usually under the engineering authorities in the larger cities, but is frequently under the health officials in the smaller towns. The latter policy is unwise, as all problems are of an engineering nature and require the attention of officials educated and trained in transportation, machinery, chemistry, business, and the handling of labor. Medical training does not equip a man to cope with these problems, and the relation of refuse to health seldom is encountered in the actual work.

A larger city is frequently divided into districts which are in charge of superintendents, who are aided by assistants, general foremen in charge of functions such as street cleaning, ashes, garbage, rubbish, stables and dumps, foremen in charge of gangs and units of men; timekeepers, clerks and stenographers; and inspectors. The men performing the actual work are classed as wagon, machine broom, sprinkler, flusher and truck drivers; and sweepers, patrolmen, inlet cleaners, refuse loaders, and dumpmen. The work of caring for the horses, trucks, other equipment and buildings is performed by stablemen, farriers, blacksmiths, mechanics, wheelwrights, carpenters and painters. Inspectors investigate complaints and arrange for the removal of causes producing dirt, and a veterinary inspects the horses each day and treats all that are sick. The district is a complete unit and contains an office, garages, stables, shops for horseshoeing and minor repairs to automobiles and wagons, and often facilities for relaying refuse from wagons to trucks, trains or barges.

The disposal of the refuse entails the maintenance of reduction plants, incinerators, reclamation plants, dumps, barge wharves, and train-loading stations. Each of these plants employs many men of varied trades, and is in charge of a supervisor who may have the title of foreman, superintendent or engineer.

There are large general shops for major repairs to automobiles, wagon shops to overhaul and build horse-drawn rolling equipment, a great storehouse with daily truck delivery to all stations, and a maintenance division that designs, repairs, rebuilds and erects buildings and plants.

The central organization consists of a chief or director, an assistant chief, general supervisors, functional supervisors for horses, motor vehicles, disposal, and accounting, and office managers in charge of billing, purchasing, accounting, complaints, accidents and safety, and general office work.

A division of education instructs the public in ways of preventing street litter, through personal visits to homes by inspectors, lectures at schools, civic bodies and women's clubs; literature, still and moving pictures, and radio addresses. This division maintains contact with the newspapers in an effort to obtain favorable publicity, and with the police to obtain enforcement of ordinances prohibiting littering. The latter effort is usually ineffective, as the

police will rarely aid in securing clean streets in any city, although littering can be prevented only by their efforts.

An engineering division employs technically educated men who are thoroughly trained in all phases of refuse removal. This division designs routes, methods of operation, and new equipment, and conducts research as well as checking the work of the collecting and disposal units. It is the brain center of the organization, although entirely unknown to the public.

The organization in the city used as an illustration has 3,200 employees, of whom only 7 are women, 1,800 horses, 150 trucks, 50 flushers, 20 barges, and 100 pieces of miscellaneous automotive rolling stock, and the necessary ash, rubbish, garbage and street dirt wagons, machine brooms, sprinklers and patrolmen carts. Nearly 100 separate buildings are used in the work.

The office force, engineers and supervisors are paid a monthly salary, and the labor forces are paid on an hourly basis for time actually worked. The hours of labor average 9½ hours daily on every week-day in the year excepting Independence Day, Labor Day and Christmas. The work continues day and night; garbage men leave the stables at 5 A. M., ash and rubbish collectors at 6 A. M., street cleaners at 6 A. M., and have usually completed their work by 5 P. M., excepting in the winter when the ash collection may not be completed until 10 or 11 P. M. if production is heavy and the weather bad. The night flushers leave the garages at 7 P. M. and work until morning, and night cleaning gangs start when the theaters close and work until morning traffic becomes heavy. Refuse collection is made at night in the business districts, and the disposal plants work 24 hours per day in the rush season. The amount of work increases from September, when the refuse is lightest, to January, when the greatest amount is collected.

Officials and Laborers a Zealous Lot

The citizens often believe that all is politics and that soft jobs are the rule. There are many workers favored with soft jobs, but many others must work harder for that reason. The laborers are good-type Americans in many of the smaller towns, particularly where the climate is good and jobs are scarce, and exceedingly rough in some of the larger cities of the North. The work is hard in winter and must be continued in spite of adverse weather conditions resulting in soaked shoes and clothes in freezing weather. Collection continues when all other outside work, where the men must work without shelter, has ceased. Under these circumstances and the small wage paid, it is not remarkable that the men are rough, careless, pugnacious and frequently drunken.

The mechanics and office force are generally competent and willing to work, although appointed for political reasons. The superintendents are technical men in some cities, and practically trained men in others. The latter type are principally burly, capable men, experienced in the work, and sincerely interested in it even when appointed for political reasons. The engineers are often of high caliber and in the service for the best interests of the city.

The chief of the organization is often a practical politician in the smaller towns, but full of civic patriotism and the desire to conduct the work efficiently.

The chief of the organization in the large cities may be a competent engineer, a practically trained man, a politician, or a distinguished citizen appointed for political or social reasons or as a blind. The engineer or practically trained man is usually the actual head of the bureau, although handicapped by the politicians; the politician is in office to conserve the interests of his backers, and knows little and cares less about the work; the distinguished citizen invariably knows little about anything.

The political manager is not of the crude type made common in current fiction, which is almost unknown among men in charge of departments and bureaus in large cities. In common with the distinguished citizen he knows nothing

Courtesy of Robert B. Brooks, Director of Streets and Sewers, St. Louis, Mo.

THE MACHINE METHOD OF CLEANING CATCH-BASINS IN ST. LOUIS, AND THE MANUAL METHOD WHICH IT HAS REPLACED

about the work, which must be intrusted to the charge of a competent lower official. There is such a man in every organization headed by a man of the political manager type. It is this man who keeps the wheels running while the chief attends to politics, fraternities, sports or society, and receives the faint praise and frequent criticism accorded to his unpopular department. The lesser light is unknown to the public and the newspapers, but his work may be published in the technical magazines and receive commendation from competent engineers in foreign cities.

Women in Refuse Work

There are few women employed in refuse removal and disposal in America excepting as clerks and stenographers. Women do not enter engineering schools to receive the technical training that would equip them for important official positions in a refuse organization, nor are they physically or temperamentally equipped to manage the rough labor employed on the work at present. When such training has been acquired, and the labor situation has improved, it is a branch of municipal engineering in which women should be successful.

The collection of refuse requires more strength than is possessed by laboring women, but the work of sweeping and patrolling is within their physical capacity. Women are seldom used on this work in America, although it is common in Europe. Women are rarely used as inspectors, but are equal or superior to men in this position.

The women in our cities are more interested in the appearance of the streets than are men. Their natural love of order and cleanliness causes them to object to litter and filth on the streets more strenuously than their husbands and brothers. Many club women are sincerely interested in civic improvements and cooperate with the municipal authorities in educational work among the citizens. Campaigns in litter prevention are conducted by women's clubs by various methods, and prizes are awarded to children for essays discussing the problems involved. The number of women interested in the work is increasing and their voiced opinion must prove a stimulus to the competent official, a spur to the laggard, and a check on the dishonest.

What Is Sound Planning for the Small Town?

To the Editor of THE AMERICAN CITY:

Can a town start a planning program that is sound and solid without first buying a "complete" city plan? That such action is not only possible, but feasible, was the essence of my argument in your February issue, which you entitled "Let the Plan Grow Up With the Town," and which was followed, in the same issue and later, by opinions from other city planners, two of whom labeled the idea a heresy.

But is it heresy? I recently had the privilege of talking to the city planning body of a Texas town that had interviewed some eight city planners as to its immediate planning needs, as to what a rational city planning program for the community would be and what the cost would be. Out of the eight, only one apparently went into the meeting without some fixed program to present, a statement of procedure, a schedule of fees, and all these prepared, ready to be presented and accepted, before a preliminary conference had been held with the city planning body, and in most cases before the city planner had visited the town and surveyed its needs. Apparently I am in the minority when I say that the proper approach to the city plan for such a town is to find out the most urgent planning needs, study them on a city-wide basis, giving due consideration to other phases of city planning, and get something moving.

Perhaps the first need is a thoroughfare system to straighten out arterial lines of traffic into and through town before it is too late or too costly to correct conditions. Perhaps the most pressing need is to get some parks properly located in the direction of city growth. Or it may be zoning that is needed. I stress the point that when necessity indicates this method of procedure, the particular problem studied at any one time must be on a *comprehensive* basis, and that the plan must provide for future needs in that field as far as can be forecast. This answers Mr. Hathaway's question in regard to the death of the consultant. Any capable consultant can pick up the work if the man preceding him has done and reported fully on a comprehensive study in the field studied prior to his demise.

I say again, it is better for a small city to have a thoroughgoing, community-wide study of certain of these fundamentals of the city plan, get them moving, and actually accomplish something on the city planning problem than to get some "complete" plan that looks good on paper but is far beyond realization. Such complete plans can be sold to the community while the parent of these plans is on the ground and because he is the "expert." But when he is gone, the over-enthusiasms of the plan become apparent and the people give up their "planning program" because they are unable to grasp its relationship to the solving of insistent, existing demands.

I am not condemning the comprehensive city plan. If a town needs every element of planning immediately, then see that the town gets it. If it does *not* need a "plan report," but rather some sound basic studies and plans for early accomplishment, the planner should temper his natural desire to do a big, comprehensive job, by rendering the kind of service that the community is ready to accept. With this attitude he can get the viewpoint of the local officials and civic leaders, analyze the needs of the town, and then, on a friendly, cooperative basis, sit down with them in conference and block out a plan that they can actually put into operation; a plan that will be comprehensive in the fields it covers, will look ahead two, three or more decades, and help the smaller city through one of the most critical periods it faces.

ARTHUR HAWTHORNE CARHART.
Denver, Colo.

More Massachusetts Forestry Holdings

BY August, 1935, the Commonwealth of Massachusetts will have completed the purchase of 50,000 acres of land for reforestation purposes. This is in addition to the 100,000 acres authorized by the State Forest Act of 1920, of which 96,000 have already been acquired or contracted for, and is in accordance with an amendment to that Act passed by the 1930 State Legislature, and signed by Governor Allen on May 2. The land is to be acquired by the Commissioner of Conservation at a price not to exceed $5 per acre, or at such price as the General Court may determine.

Of the $3,000,000 appropriated for purchase of the 100,000 acres authorized under the 1920 Act, a total of only $1,361,000 is being expended for the 96,000 acres. More than $60,000 worth of forest land has been donated. Other interesting facts of public forestry finance were made public in a recent report issued by Secretary Harris A. Reynolds, of the Massachusetts Forestry Association, including the fact that in 1924 the Association requested the U. S. Forest Service to appraise about 77,000 acres of forest land acquired to that date. The appraisals showed that the land for timber-growing purposes alone was worth $1.11 more per acre than the state had paid, including all costs for development. The state has realized to date, for the sale of forest products, $43,000, and for the rental of camp sites, $7,500.

The state has planted 10,000 acres. A large percentage of the remaining land can be brought back to commercial forests with proper thinning and with little additional planting. There are said to be about 1,000,000 acres of idle land in Massachusetts that can be made productive through state ownership and development.

Massachusetts ranks third in the list of ten states now committed to the purchase and reforestation of woodland, says the Planning Foundation of America. Idaho leads, with 1,177,545 acres. Pennsylvania is second, with 1,131,277 acres. These figures do not include state park acreage nor forest reservations.

FRONT STREET, HARRISBURG, PA., WITH SUSQUEHANNA RIVER AT LEFT
Another view appears on the front cover

Modern Illumination for a Riverside Boulevard

By ROBERT W. CRIST
ASSISTANT SECRETARY, CHAMBER OF COMMERCE, HARRISBURG, PA.

ONE OF THE NEW LIGHTING UNITS

A DIFFICULT problem involving the lighting of a boulevard which is bordered on one side by fine residences and on the other side by a city park has been worked out satisfactorily in the case of Front Street, Harrisburg, Pa., under the direction of the City Electrical Department in cooperation with the Pennsylvania Power & Light Co. and the General Electric Co. The street parallels the Susquehanna River for several miles.

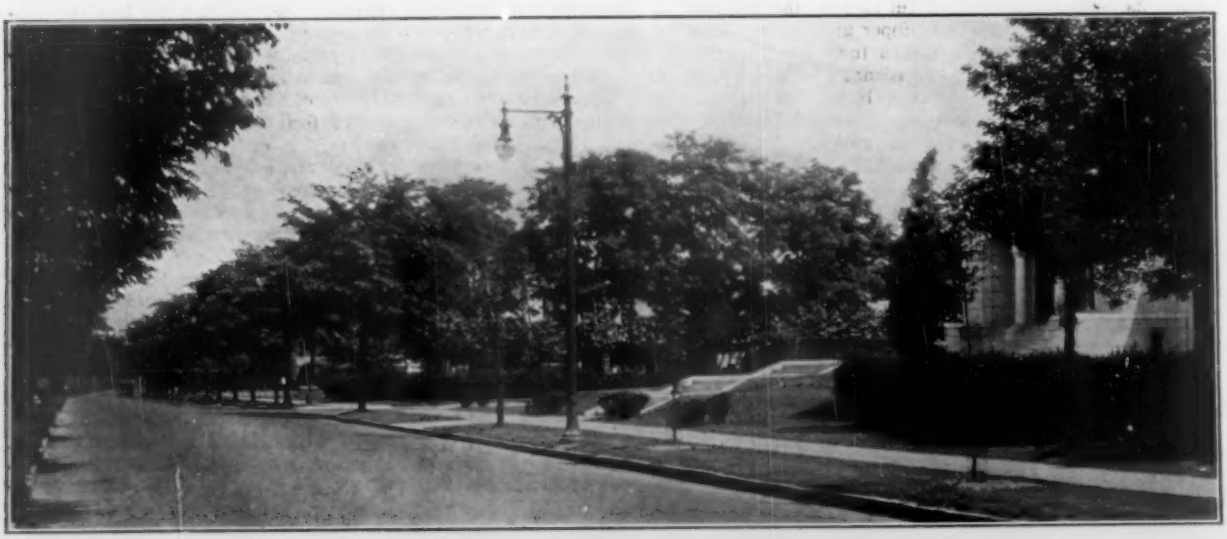
Standards 22 feet high from the curbing to the top of the light have been used. An ornamental stem of rolled steel, fluted, connects a cast iron base and top and supports a 4-foot arm on which a 600-candlepower light is suspended, out of the line of the tree trunks. A Holophane refractor surrounds the upper half of the lamp bulb, to redistribute the light rays to better advantage over the street and into the park. Covering the entire lighting fixture is a thin glass diffusing globe. The light center is 19 feet above the street.

All the standards have been placed on the residence side of the street, 150 to 160 feet apart, except in the heart of the city, where the distance has been reduced to 100 feet. Standards erected to date number 114, and 53 additional are to be placed this year along the southern end of the boulevard. For one block in the extreme southern end of the city there are houses on both sides of the street, and in that section the standards will be alternated on both sides of the street. Between 23,000 and 25,000 feet of cable will be used in the completed installation.

The lighting system is of the newest design and is considered to be the most efficient type of street lighting. The standards were chosen for their beauty, general appearance and efficiency, as well as to harmonize with the park layout. The circuits are 20-ampere, series.

The ornamental standards are the product of Union Metal Manufacturing Co. and the lighting units are by General Electric Co. Columbia Electrical Co., of Harrisburg, installed the system under a sub-contract let by Pennsylvania Power & Light Co., which was authorized by the municipality to do the work. The entire installation was supervised by the City Electrical Department, headed by Victor Snyder.

In spite of shade trees and numerous private driveways, it has been possible to place the standards at almost exactly equal intervals.



AIRPORTS AND AVIATION

A Monthly Department on Aeronautical Activities of Municipal Interest

Conducted by ARCHIBALD BLACK, President, Black & Bigelow, Inc., Air Transport Engineers

The Airport in the City Plan

IN a paper carrying the above title, Prof. Henry V. Hubbard, Director of the Harvard School of City Planning, presented to the National City Planning Conference a digest of the school's first report on the subject of airports. Beginning with an outline of the generally known basic requirements of an airport, Professor Hubbard's paper sketches the place of the airport in the city plan according to the character of the facilities which it has to offer. The relation of the airport to the business center and residential areas is taken up, and consideration is given to the effect of airports upon these areas in their proximity. Some significant paragraphs from Professor Hubbard's summary follow:

"The airport is primarily a part of a transportation system, as important to a town as a railroad was fifty years ago. The airport is also a functional area which must be related to all the land serving the community, so that each part and the whole taken together shall most efficiently produce all those good things which the community ought to provide for its citizens; that is, the airport must take its place in a complete and reasonable city and regional plan. To make a decision which will produce this result takes knowledge and skill, and is the task of the city plan commission, or of whatever representative of the community makes, interprets and defends the city plan. It should not be evaded, nor dissipated among a number of authorities with partial responsibilities.

"No one can now with certainty plan for the best future development of aviation. For discussion, however, we suggest the following as a possible regional system of airports. It would presumably be set up, if at all, only for the larger cities:

"1. A large intown municipal airport, being to air transportation what a union railroad station is to a railroad system. It should be within fifteen minutes of the center of the town. It should not contain any considerable storage or repair facilities. It should probably not be open to private planes.

"2. There might be some airports serving as storage and repair shops for the airplanes touching at the intown airport. They could be as far from the center as necessary and need not be very closely related to the ground transportation system.

"3. There might be an outer circle of airports like the parking spaces and garages at the outer termini of the rapid-transit system; that is, they would be places to which people residing in the suburbs or the country would come by private or taxi airplane, and from which they would go by rapid transit to the heart of the city.

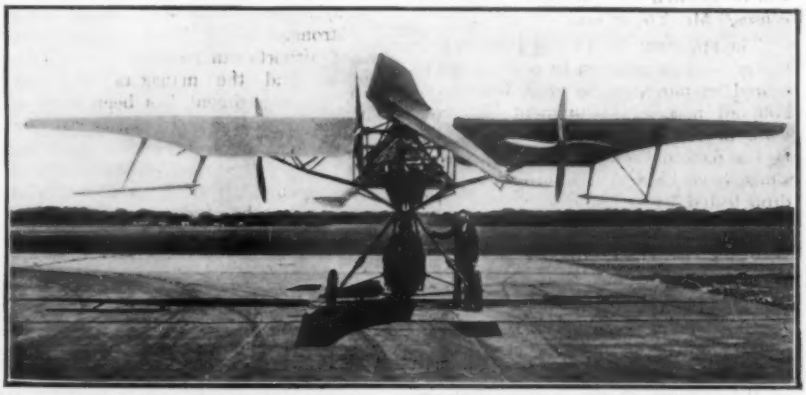
"4. Then there could be at suburban centers, perhaps far from the city, local airports from which the local population would fly, principally to the ports mentioned under 3.

"5. Also there might be various private airports; that is, landing ports for airplane clubs, manufacturers' testing fields, schools, etc.

"Along main routes of air travel, intermediate landing fields are desirable ten miles apart or closer. Small local airports will often serve this purpose."

Curtiss-Bleecker Helicopter

THE Curtiss-Bleecker helicopter, upon which development has been under way for the past four years, was recently assembled in one of the hangars at the Valley Stream airport of the Curtiss-Wright Flying Service and at the time of going to press is ready for its initial flight. This craft somewhat resembles in outward appearance the Cierva-autogyro, the fundamental difference being that the revolving wings are pulled around by individual propellers instead of being rotated by the forward motion of the entire craft as in the case of the autogyro. This difference gives the Curtiss-Bleecker machine the outstanding advantage of being able to rise vertically from the ground without any horizontal run. In addition, if successful as a true helicopter, it should be capable of hovering indefinitely over any spot so long as the gasoline supply lasts.



THE CURTISS-BLEECKER HELICOPTER AT CURTISS FIELD, VALLEY STREAM, N. Y.

A Period of Record-Breaking

THE four weeks prior to our going to press has been an unusually active period of record-breaking in aviation. Beginning with the triumphal return of Rear Admiral Richard E. Byrd from his expedition to the South Pole, the press of the country has found it necessary to carry aviation stories on the front page almost daily during this period. The Southern Cross in command of Kingsford-Smith successfully completed the east-to-west flight across the North Atlantic, landing at Harbor Grace, Newfoundland, late in June, completing the trip to New York just before the end of the month, and later continuing to San Francisco—thus completing a trip around the world. Almost immediately following Kingsford-Smith's arrival in New York, Roger Q. Williams made a non-stop flight from New York to Bermuda and return. While these flights were taking place, the two Hunter brothers, John and Kenneth, were circling over Sky Harbor at Chicago, building up time in their record-breaking, non-stop, re-fueling flight. The Hunter brothers finally landed in Sky Harbor on July 4 after having been in the air 553 hours 46½ minutes, breaking by a very liberal margin the former record of 420 hours established by Dale Jackson and Forrest O'Brine in 1929.

State Activities

OHIO has the first mandatory municipal air marking law in the world, embodied in its General Code 6310-44, according to a report prepared by the State Director of Aeronautics, John M. Vorys. This provides that each municipality in Ohio shall be air-marked in accordance with the rules and regulations prepared by the Director of Aeronautics within 60 days after receiving such notification.

An order embodying rules and regulations to be applied to a wide variety of aviation activities was issued June 30 by the New Hampshire Public Service Commission through its Chairman, Mayland H. Morse. Provisions of the order are to become effective on and after August 1, 1930. This order provides that all rules and regulations established by the U. S. Department of Commerce are adopted by and

form a part of the rules and regulations of the State Public Service Commission. The order prescribes that substantially all the interstate regulations of the Bureau of Aeronautics of the Department of Commerce apply to flying activities confined within the state. State registration of aircraft is required and certain regulations supplementing those of the Department of Commerce are incorporated in the order of the Commission.

Parachute Riggers to Be Licensed

EFFECTIVE July 1, 1930, any person who packs, repairs or is charged with the inspection and maintenance of parachutes approved as to air-worthiness by the Department of Commerce will be required to obtain from the Department of Commerce a Parachute Rigger's license, under new regulations announced on June 23 by Clarence M. Young, Assistant Secretary of Commerce for Aeronautics.

"Only those who successfully pass examinations designed to test their capability of inspecting, repairing, packing and otherwise properly caring for parachutes will be granted the Parachute Rigger's licenses," Mr. Young said.

"The applicant must be at least 18 years of age, and in addition to passing the required examination he must have available all necessary equipment for repair work or repacking, and must show that he has packed twenty or more parachutes which have been satisfactorily jumped or drop tested."

Air Transport Continues to Increase

A STATEMENT issued on July 14 by the Transcontinental Air Transport and Maddux Airlines stated that the month of June showed the heaviest traffic in the history of this system. During May, TAT-Maddux airplanes carried 5,474 passengers, and in June 5,688 passengers were carried. The TAT-Maddux system is operated in conjunction with the Pennsylvania and Santa Fe Railroads, and the eastern section of the system accounted for the major portion of the traffic, due largely to business men making trips across the continent. This company increased its fares from 5 and 6 cents to 7 cents per mile about the middle of June.

German Air Traffic Declines

REPORTS from A. Douglas Cook, U. S. Assistant Trade Commissioner at Berlin, disclose the fact that the German Lufthansa freight and mail traffic showed an increase in 1929 but encountered substantial decreases in its passenger traffic, baggage, newspaper volume and kilometers flown. The drop in passenger traffic was approximately 22 per cent as compared with 1928, while the decline in kilometers flown was about 11 per cent. Mr. Cook's report states that the entire German aeronautical industry suffered greatly by the 50 per cent cut in the federal aeronautical budget. The Lufthansa was obliged to reorganize extensively, and discharged about one-third of its personnel, although maintaining its chief services. This shrinkage in German air transport activities is apparently due not so much to involuntary loss of traffic as to the necessity of reducing operations following the reduction of its subsidy.

Colleges to Test Airplanes

FOR the past several months the various aeronautical colleges of the country have been preparing to conduct flight tests of airplanes. A committee of the Aeronautical Chamber of Commerce under the chairmanship of Prof. Alexander Klemin, of New York University, has devised a system of standard tests and in the latter part of June conducted the first test under this plan, using a Curtiss Robin airplane. The flights took place over the Curtiss-Wright field at Valley Stream.

New Sources of Airport Revenue

ENTERPRISING managers of commercial and municipal airports, faced with the problem of making their projects pay, have been constantly on the lookout for new sources of revenue. Among some of the recent additions to the airport, the miniature golf course seems to be taking the strongest hold. Already an extensive list of airports can boast of these tabloid courses, and the managers' experience with this experiment has been very encouraging. One eastern flying field operated by a nationally known flying service has privately reported that its miniature golf course paid for itself within the first few months of use.

Periodic firework displays, often including "aerial bombing" of a ground fort and similar pageants, have also been found to attract substantial crowds. These displays, however, must be planned with an eye to getting revenue from the visitors to the field in the form of admission or parking fees. While some fireworks can be viewed equally well from outside, the specialists in staging these displays are pastmasters in the art of making the man outside feel that he is missing part of the display by not paying the small fee charged for admission. As a matter of fact, the experienced firework specialists have developed a knack of using the aerial displays to attract attention, while the ground displays and the pageants are arranged so that they cannot be seen from outside.

A Nation-wide Study of Airport Drainage and Surfacing

THE problems of adequate drainage and surfacing for airports are being intensively studied by a committee composed of technical experts of the American Engineering Council, the American Road Builders' Association, and the Aeronautics Branch of the United States Department of Commerce. This Committee on Airport Drainage and Surfacing was organized by Clarence M. Young, Assistant Secretary of Commerce for Aeronautics. The formation of 120 local engineering committees and a survey of 100 airports in the United States have been undertaken.

Latest Count of Airports

THE Aeronautics Branch of the Department of Commerce has announced that there were 96 more airports and landing fields in the United States on July 15 than on January 1 of this year. The July 15 total of 1,657 is divided as follows: 502 municipal, 535 commercial, 333 intermediate, 206 auxiliary, 60 Army, 14 Navy, and 7 miscellaneous Government and private airports. A summary by states is available from the Department.

Municipal Airports and Liability Insurance

ONLY 10 cities out of 50 circularized by the New York State Bureau of Municipal Information report that they carry liability insurance on their municipal airport against personal injury and property damage. These cities are Miami, Fla., which carries personal injury insurance for $50,000 and property damage insurance for $25,000; Newark, N. J., personal injury insurance for $10,000 to $20,000; Richmond, Va., personal injury insurance for $20,000 for injury to one person and $40,000 for more than one, and $5,000 property damage insurance; San Diego, Calif., personal liability insurance for $25,000 to $100,000 and $15,000 property; St. Petersburg, Fla., $10,000 to $50,000 personal and $10,000 property; Santa Monica, $5,000 to $10,000 personal insurance; Syracuse, N. Y., $10,000 personal and $1,000 property; Ann Arbor, Mich., $10,000 personal injury; Fresno, Calif., $50,000 to $75,000 personal, $12,000 property; Seattle, Wash., personal injury $200,000, property damage $25,000.

Three cities reported that they had had claims for damages resulting from accidents at their municipal airports. Richmond, Va., had one minor claim, which was settled for $75. Tampa, Fla., had a claim for fire damage at the hangar, and the city was denied liability. Cleveland, Ohio, had one suit for damages because the authorities burned, as scrap, a wrecked plane. The courts held the city liable and the city settled.

The legal liability of the city for accidents at a municipal airport seems to be questioned by different cities. San Diego, Calif.; Fort Worth, Texas; Newark, N. J., and Fresno, Calif., believe that the city is liable for damages resulting from the municipal operation of an airport, while in Wichita, Kans., the authorities hold that the city is not liable, this being an exercise of governmental functions, and in San Francisco and Portland, Ore., the posting of danger signs, safety zones, etc., is considered sufficient protection.

Many of the municipalities believe that it is not necessary for the city to carry liability insurance, because all fliers carry such insurance. Those cities which do carry insurance believe, however, that the city should take every reasonable precaution in protecting the city's interest. The advisability of carrying airport insurance is entirely up to the municipality and may be determined by the same line of reasoning that applies to other kinds of insurance on municipal property.

E. D. GREENMAN.

The Rights of Airports and Adjoining Landowners

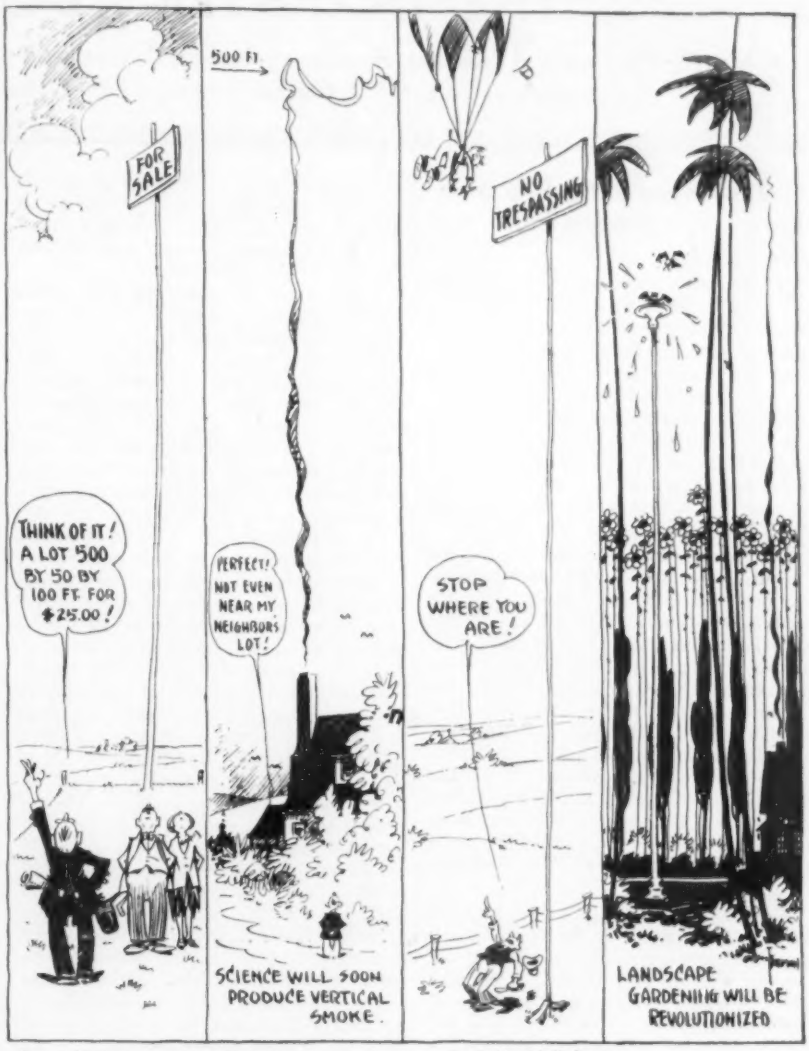
THE status of airports as regards the rights of neighboring landowners and of the public generally, was defined with considerable care in the recent Federal case of *Swetland v. Curtiss Airports Corporation* (see Zoning and Planning Notes, page 169 of this issue). The plaintiffs' 135-acre estate had been quiet and secluded for 25 years, until the establishment of an airport which drew large crowds and created noise and other disturbances.

The Court decided that in view of the declared legislative policy of the state to encourage aviation, an airport is not in itself a nuisance, although it could be so located or operated as to be one.

The Court, however, granted the estate owners the right to an injunction to restrain airplanes from flying over their property at an altitude lower than 500 feet, the minimum prescribed by the regulations of the Secretary of Commerce under the Air Commerce Act of 1926, which were declared to have the force of laws and to apply to intrastate as well as interstate air commerce in Ohio, since the Ohio Aeronautics Act, in effect, adopts the Federal regulations by requiring aviators to obtain licenses under the Federal Act.

The plaintiffs were also granted the right to enjoin the airport from permitting an annoying amount of dust to be blown in the direction of the estate when it was shown that this could be prevented by concrete or grass-covered runways. Likewise, airplanes from the airport could be prohibited from dropping circulars upon the plaintiffs' estate.

Adjoining property owners were held to have no property right in the superincumbent air space normally traversed by aviators, as against the public, in spite of long-standing ideas which might seem to indicate the contrary. The Court went into this question at considerable length, examining the history of the law relating to the regulation of the air space above private property.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LANDSCAPE GARDENING WILL BE REVOLUTIONIZED

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COURT ESTABLISHES 500-FOOT AIR OWNERSHIP TO REAL ESTATE

Airport Lighting Requirements

LIKE golf, airport lighting is a favorite subject for free advice. It often seems that everyone around an airport, with the possible exception of the pilots and the manager who pays the bills, has a quick and ready answer to the problem of equipping a flying field for night operations. There are successful airport lighting projects which have been accomplished for a reasonable amount of money—but they are not the result of accident nor of amateur attempts to solve a fairly difficult problem.

It is generally understood that not any one knows the full answer to the problem, and to many it is still all rather vague. What is often lost sight of, is the fact that the problem of lighting an airport is primarily one for an illumination engineer. There is no magic or black art about the science of floodlighting. It has been developed and successfully applied to a number of fields long before the need arose for illuminating airports.

It is obvious that airport lighting should be designed primarily from the pilot's point of view, since it is for his convenience that the whole scheme exists. The requirements of pilots are comparatively simple—particularly of pilots with long experience rather than inexperienced amateurs to whom flying is still a novelty.

They are as follows:

1. An unmistakable indication, by beacon or otherwise, of the location of the airport
2. A clear delineation of its boundaries
3. An unmistakable marking of every dangerous obstruction
4. An accurate indication of wind direction
5. A sufficient illumination of the area on which the landing is to be made, to enable him to judge his distance from the ground
6. Unfailing reliability of equipment

This last point is one that is most frefrequently overlooked. Any long-experienced pilot will tell you that he would much prefer to make a landing on a totally dark field aided only by an intelligent mechanic carrying a $2 red lantern and a 98-cent flashlight, than to attempt a landing on a field where the lighting facilities were confusing or were not absolutely reliable.

Good illumination results do not mean the expenditure of a vast amount of money or the purchase of an uneconomical quantity of lighting equipment; however, they do mean the procurement and installation of such equipment as may be economically purchased, installed, and added to as funds are available and flying activities increase.

E. A. SIPP.

THE TAXPAYER'S DOLLAR

A Monthly Department of Budgeting, Assessment, Taxation, Accounting and Other Phases of Municipal Finance
Conducted by A. E. BUCK, National Institute of Public Administration, New York

Million More Added to New York City's Budget for 1930

NEW York City's budget, as a controlling financial plan for the operation of the city government, becomes more and more of a farce as the fiscal year advances. Last December when the 1930 budget was adopted, it carried the huge total of $564,769,828.23. In February, before the fiscal year was well under way, this budget was reopened to include salary increases for firemen and policemen in an amount not to exceed $5,000,000, thus raising the total to $569,769,828.23.

But this was not all. On June 13, the Board of Estimate and Apportionment approved an additional expenditure for 1930 aggregating $217,629,395 for permanent improvements. This amount is regarded by the city authorities as being extra-budgetary, since it is financed by the issuance of serial bonds, tax notes and corporate stock. However, if the city had a comprehensive budget plan, this expenditure would be taken into account in the original financial program. The budget adopted last December would then show total authorizations for 1930 of $787,000,000 in round figures, instead of $569,000,000.

A comprehensive budget would undoubtedly be a great aid at this time to the city administration. This is evident from the fact that on July 17, City Controller Berry warned the Board of Estimate and Apportionment that it was obligating the city government beyond the legal borrowing capacity. He stated that the present borrowing margin of the city was approximately $267,000,000 and that the Board had already approved a $1,500,000,000 program for capital improvements extending over the next several years. This certainly indicates that comprehensive budgeting and long-time planning of improvements ought to be adopted at once.

Summarizing the Bonded Indebtedness of 227 American Cities

C. E. RIGHTOR, chief accountant of the Detroit Bureau of Governmental Research, has done a good piece of work in summarizing the bonded indebtedness of 227 cities, as published in the June issue of the *National Municipal Review*.

The preparation of this summary was by no means an easy task. Mr. Rightor has prepared the summary for the eighth consecutive year, improving it here and there each time. The cities are grouped on a population basis, there being five groups for the 213 cities from the United States. Group I contains the cities with a population of a half-million or more; group II, 300,000 to 500,000; group III, 100,000 to 300,000; group IV, 50,000 to 100,000; group V, 30,000 to 50,000. Fourteen of the largest Canadian cities are also included in the tabulation.

The tabulation shows the total gross bonded indebtedness as of January 1, 1930, divided into three general groups—general public improvements, schools, and utilities. Following this, the total sinking-fund is shown with a similar grouping reported in percentages. The net total bonded debt is then computed; also the net bonded debt to be retired from taxation under the heading, "excluding self-supporting." Per-capita figures for the latter item are shown. Finally, the total gross special assessment debt is included.

These figures alone are dull reading, as Mr. Rightor observes, but he suggests that they afford an opportunity to draw conclusions as to the comparative debts of cities, the extent of the debt for various purposes, the use of special assessments, the application of the pay-as-you-go plan, and so on. When compared, one year with another, these figures indicate that the trend has been gradually upward for many years. The Bureau of the Census tabulations show, for example, that the per-capita payment for interest in the 146 comparable cities has increased from $2.06 to $6.38 in the period between 1903 and 1927.

Mr. Rightor's table shows a wide range in comparative per-capita debts. Washington, D. C., has no debt. Elgin, Ill., has a per-capita net debt, excluding self-supporting, of $7.04, and the figures go on up until the highest is Atlantic City, N. J., with a per-capita of $486.83.

Accounting for the Minneapolis Permanent Improvement Revolving Fund

MINNEAPOLIS finances the construction of new sewers, paving, curbing and gutters from a so-called permanent improvement revolving fund. The property portion of the cost of such projects is assessed on a five-year payment plan; the city portion is raised by a tax levy carried in each annual budget. Actual construction work is carried on under the supervision of the City Engineer by the force account method. The annual volume of work amounts to about $2,000,000.

The permanent improvement revolving fund is established by law, its control being vested in the City Comptroller's office. This office keeps the controlling accounts, while the detailed accounting is under the City Engineer's department. The two sets of accounts are of course reconciled by means of a so-called balancing account. This system has been developed largely by two individuals, Gustave A. Moe, until recently cost accountant in the City Comptroller's office, and Charles A. Berry, accountant in the City Engineer's department.

Messrs. Moe and Berry explain the cost accounting system set up in this connection as follows: "The system here used is based on the distribution of the four basic elements of expense, viz., labor, material, equipment, and overhead, without which no improvement can be built. This distribution is made possible through various forms and records. The field reports of labor and material used are submitted by the various foremen in charge of the work. The labor distribution is submitted daily by the foreman, checked by a field timekeeper, and turned in to the chief timekeeper for payroll purposes. After being checked by him, it is turned over to the cost clerk for cost purposes. The materials report is furnished by the foreman periodically or at the completion of a job, and is turned over to the cost clerk in the City Engineer's office. The equipment report is furnished daily by the operator of the particular piece of equipment, countersigned by the foreman, and is used by the cost clerk in charging each project for the equipment used. Overhead rates charged are prorated against the direct field labor, and the general expense portion of overhead is charged on a flat rate against the total charges of the project. This last-named item includes expense for services rendered by the City Comptroller, City Treasurer, City Attorney, etc."

It is asserted that the public has actually become interested in the cost accounting procedure in Minneapolis, at least in so far as it relates to the operation of the permanent improvement revolving fund, since it tends to lower the cost of public improvements. Completed costs on each project are published as soon as the project is finished. These costs prove valuable to the engineers in preparing estimates on future projects, because they serve to indicate particularly the trend of charges for labor.

Contrasting Some Annual Reports of Cities

THREE annual reports of cities, which are out of the ordinary, have recently come to our attention—those of Brunswick, Ga., Fort Worth, Texas, and Cincinnati, Ohio. From the standpoint of typography, these reports leave very little to be desired. The Fort Worth report is particularly impressive in this respect. Each report is very well illustrated and reasonably concise. All are manager-governed cities.

The Brunswick report was prepared by E. C. Garvin, the Manager of that city. It contains 45 pages, many of which present full-page graphs. These graphs, deal-

ing mainly with financial and statistical matters, are perhaps the most impressive part of the report. Mr. Garvin's report, so far as its general emphasis and set-up are concerned, affords something of a model for small cities to follow.

City Manager O. E. Carr prepared the Fort Worth report. It contains 47 pages with numerous pictures and graphs. The first twenty pages present a resumé of the work of the city government, which, by the way, covers a biennium instead of a year, as in the case of the other reports. It is highly probable that an annual report would be more satisfactory as a means of public information.

The Cincinnati report was prepared under the direction of Colonel C. O. Sherrill shortly before he resigned as City Manager. C. A. Harrell, executive assistant to the Manager and now City Manager of Portsmouth, Ohio, was mainly responsible for getting the material together which went into the report. The report contains 111 pages, illustrated by photographs, diagrams and graphs. The work of each department of the city government is discussed and a summary of the outstanding accomplishments is presented in the early part of the report.

It would be interesting to know how widely these three reports were circulated in their respective cities, and what the reaction was from the newspapers, from the commercial and business organizations, from public school teachers, and from citizens and taxpayers. This would help to determine how effective they are as an aid to public education in what these city governments are doing.

Cost Accounting Applied to County Road and Bridge Work

IN Hennepin County, Minnesota, there is being carried on a pioneering piece of work in cost accounting for road and bridge projects. This work has been developing over a period of five years, or more, under the supervision of F. R. Chailquist. So far as we know, no other county in this country has pushed ahead any further than Hennepin in the cost accounting field and in the adaptation of mechanical devices to costing. This progress is largely attributable to Mr. Chailquist.

Recently we received from Mr. Chailquist a copy of his report on road and bridge performance for 1929. This report sets forth some very telling information relative to the cost of road construction and maintenance in Hennepin County. In order to call this information to the reader's attention, Mr. Chailquist asks a number of pertinent questions, as follows:

Why move gangs aimlessly around the county as indicated on Charts 1 and 2? Would it not be possible to plan work more effectively and eliminate lost motion? How about a long-time program, at least for construction and heavy maintenance?

The cost of hauling gravel with county trucks is 25.1 cents as against 15.1 cents with hired trucks and 14 cents under contract. Why? The length of haul could not be the only factor responsible for this increased cost. Yard-miles hauled per hour dropped from 14.33 in 1927 to 9.34 in 1929. This means a 34 1/3 per cent drop in production. Why? Old type trucks hauled 7.71 and 8.75 yard-miles per hour, while the new type trucks average 11.16 yard-miles per hour. Should a careful study be made of types of equipment to be used? Comparison by truck drivers shows a wide variation even where the same kind of trucks are used. Are truck drivers carefully chosen and properly trained?

Why did gasoline consumption of tractors increase almost four-fifths of a gallon per hour in 1929? This increased consumption cost $802.41. Is gasoline properly controlled?

Why the radical increase in the cost of repairs to patrol graders? Is it economical or good administration to spend up to 144 per cent of the original purchase price on graders five years or older? Should there be some control established which will fix the maximum that can be spent on any piece of equipment for repairs? How many years can a piece of equipment be retained and maintained economically? Should a study be made of the various makes of equipment to determine which type and make is the most economical to purchase?

Can anything be done to reduce shop overhead? Would it be practical and less expensive to have repair work done by private concerns? Is a watchman necessary and essential at the shop? Can storekeeping cost be reduced?

Proper estimates have a definite bearing on proper control of finances. The average percentage of error in estimates was 22.39. Is this reasonable or can something be done toward having estimates more closely approximate costs?

Are the variations in patrol justified by conditions? Are the variations in the number of times over the districts justified? Is the present policy of "farming out" this patrol work the most economical? Has any study been made to find out how patrol work is being handled by other counties and the State Highway Department, if any patrol work is being done by that department? Would it be more economical to have patrol work done with heavy power equipment rather than by teams?

Should all the road mileage shown be retained as county roads? Or should some of the present mileage be turned back to the towns and villages? Is there any definite plan worked out as to what a satisfactory county road system should include in the way of mileage? How far apart should county roads be? Or, to put it another way, what is a reasonable distance to expect towns and villages to construct roads to connect with county arterials? Is the county accumulating records by types of roads and traffic density in such manner that it is going to be able intelligently to determine what type of maintenance and improvement is logical and economical in all cases?

These and other important questions are raised by Mr. Chailquist as a result of the cost analysis to which he subjects the facts concerning road construction and maintenance in Hennepin County. Every county in the United States would no doubt profit by such analysis.

The Municipal Bond Market

By SANDERS SHANKS, JR., EDITOR, *The Bond Buyer*

MUNICIPAL bond prices have advanced steadily throughout recent months despite the flotation of a large volume of new issues. Investment demand for these high-grade securities has, in fact, kept ahead of supply, so that at this time dealers have only a moderate stock of bonds on their shelves. Inasmuch as indications suggest a sharp contraction in the volume of new financing by states, counties and cities in coming weeks, and keeping in mind the healthy and growing demand from investors for fixed-interest bearing bonds of the highest grade, it must be conceded that the market position of municipal securities is at this time entirely satisfactory. Midsummer, of course, is a seasonally dull period in the bond markets. By the middle of August, however, dealers who anticipate active fall business begin to stock their shelves, and this factor should assure a strong market for all offerings scheduled for the closing weeks of summer.

From investment experts throughout the country we learn that the demand for high-grade bonds is broadening out daily. The public is still interested in common stocks of the better grade, dividend-paying variety, even preferring such securities to second- and third-grade bonds, but instead of placing all their funds in highly speculative shares, as was the case a year ago, they are now investing at least a substantial part of their money with a keen realization of the safety of principal afforded by the better class of bonds.

The following table, giving the details of recent sales of new issues, will indicate the current level of municipal bond issues:

Amount	Municipality	Rate (%)	Maturity	Net Basis (%)
$545,000	Cambridge, Mass.	4	1-15-yr. (ser.)	3.77
174,000	Indianapolis, Ind. (Sch. Dist.)	4¼	15½-yr. (avg.)	3.96
1,250,000	State of California	4¼	32½-yr. (avg.)	4.02
513,000	Duquesne, Pa.	4½	20-yr. (avg.)	4.16
130,000	Grand Rapids, Mich.	4½	5 1/6-yr. (avg.)	4.27
1,098,417	Akron, Ohio	4½	5 1/6-yr. (avg.)	4.38
35,000	Muskegon Tp., Mich. ch. Dist. No. 1	4¾	6 1/3-yr. (avg.)	4.67
75,000	Haakon Co., S. Dak.	4¼	13 1/3-yr. (avg.)	4.74
18,000,000	State of Arkansas	4¾	23½-yr. (avg.)	4.76
12,000	Woodland, Wash.	5	11-yr. (avg.)	4.97
125,000	Lexington, N. C.	5¼	11 5/6-yr. (avg.)	5.15
217,000	Ocean Tp., N. J.	5½	5½-yr. (avg.)	3.41
8,000	Bolton, N. Y.	6	4 1/3-yr. (avg.)	5.59
5,000	Quay Co., N. Mex.	6	2-13-yr. (ser.)	5.92

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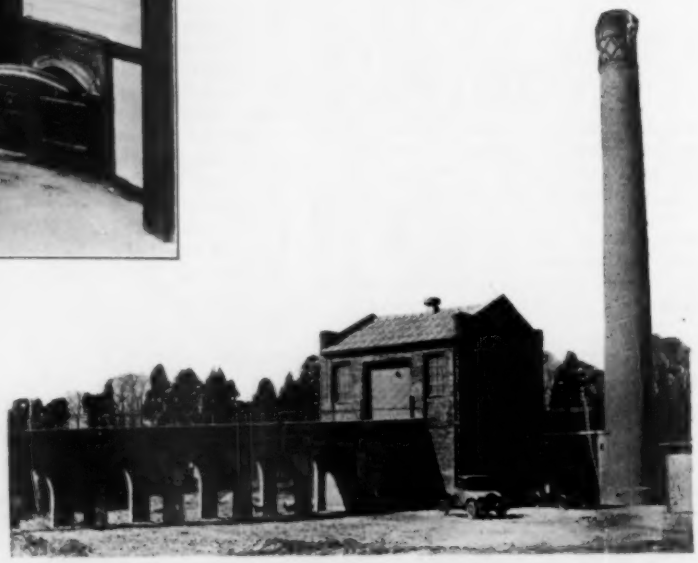

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

ZONING and PLANNING NOTES

From Data collected by the Zoning Committee of New York (233 Broadway)

Recent Zoning Ordinance

CALIFORNIA.—Los Angeles, June, 1930.

Streets

ALABAMA.—*Chichester v. Kroman*, 128 So. 166.—In vacating a street only those whose lots abut on the street are protected by the constitutional guarantees forbidding taking without just compensation, unless reasonable access is denied.

MISSISSIPPI.—*Scranton-Pascagoula Realty Co. v. City of Pascagoula*, 128 So. 73.—A municipality may use a street for any purpose not inconsistent with its use as a highway, and rights are not limited to mere surface rights. It may therefore construct a culvert under an undeveloped street without the consent of the dedicator and abutting landowners.

NEW JERSEY.—*Hulett v. Borough of Sea Girt*, 150 Atl. 202.—Streets shown on a filed map become dedicated to the public immediately when the tract is laid out in blocks and lots according to the map.

Though the exercise of the public rights resulting from the dedication of streets may lie dormant until acted on by the municipality, the landowner cannot recall the dedication except by the municipality's consent.

A municipality is neither the "successor" nor "assign" within a restrictive covenant in a deed to lots abutting on streets previously dedicated by the grantor; hence is not bound thereby.

The municipality's construction on a street of a boardwalk in front of the grantee's premises, not rising above the grade of the street at the date of the covenant against "structures" is not a violation of the covenant.

Home Rule Zoning

FLORIDA.—*State ex rel. Helseth v. Du Bose*, 128 So. 4.— Zoning ordinances cannot be enacted without specific legislative authorization.

OHIO.—*Bauman v. State ex rel. Underwood*, 171 N. E. 336.—The Akron City charter confers full power upon the common council to enact and amend zoning ordinances by a majority vote, and governs, in spite of the state law providing for amendment only by a three-fourths vote, and the city ordinance to that effect under it; for the city cannot divest itself of a charter right by ordinance.

Boards of Appeal

ILLINOIS.—*Phipps v. City of Chicago*, 171 N. E. 289.—A property owner attacking a zoning ordinance as unconstitutional can resort to equity without first making application to the Zoning Board of Appeals for relief; especially since the City Council of Chicago did not until January 19, 1927, vest the Board of Appeals with power to make use variances; such variances previously being by ordinance.

Height Regulation

ILLINOIS.—*Michigan-Lake Building Corporation v. Hamilton* (Supreme Court), reported in *U. S. Daily*, July 5, 1930.—An amendment to the zoning ordinance of Chicago changing the maximum street line height of buildings on lots having frontage on three streets from 264 to 440 feet, made 6 years after the adoption of ordinance, after construction of from 60 to 70 buildings under the original ordinance, was in violation of the zoning statute of Illinois requiring the city council, before enacting a zoning ordinance, to consider existing conditions, conservation of property values, direction of building development to best advantage to city, and the use to which the property is devoted at the time of the enactment of the ordinance, since the change in the maximum height permitted would not only unreasonably impair value of buildings constructed under original ordinance, but would constitute the ex post facto confiscation of property rights without compensation.

EDITORIAL NOTE.—This is the "Cuneo Tower" case, previously referred to in THE AMERICAN CITY for August, 1929, at page 150, under the heading, "An Amazing Attempt to Make 'The Sky the Limit' in Chicago," and again in November, 1929, at page 5.

Estoppel

NEW HAMPSHIRE.—*American Land Co. v. Keene*, C.C.A.1, No. 2444, June 5, 1930, reported in *U. S. Daily*, June 20, 1930.—A city's conveyance of a tract of land to a corporation did not preclude the city from subsequently adopting, in the exercise of its police power, a zoning ordinance prohibiting the use of such land for residential purposes, and the corporation, if injured by reason of the ordinance, was not entitled to equitable relief as against the city.

Laches—Res Adjudicata—Constitutionality

NEW JERSEY.—*Borshesky v. Board of Works of City of Elizabeth*, 150 Atl. 237. Application for mandamus compelling suit for penalties three years after dismissal of a bill to restrain violation of the ordinance is barred by laches.

One whose bill to restrain a zoning ordinance violation was dismissed cannot urge the same grievances on an application for mandamus compelling suit for penalties.

A property owner is not entitled to mandamus compelling suit for penalties under a zoning ordinance which was unconstitutional when defendant's building permit was granted.

A validating act passed pursuant to the zoning amendment to the constitution did not revive a previously invalid ordinance so as to impair permits theretofore granted.—*Durkin Lumber Co. v Fitzsimmons*, 147 Atl. 555, followed.

Exclusion of Consumptive Hospitals

NEW YORK.—*Jewish Consumptives Relief Society v. Town of Woodbury*.—Appellate Division, June 23, 1930. Our readers will remember a note in our September, 1929, number with regard to this case in a lower (Supreme, Orange County) Court, where the exclusion of the hospital from the limits of the town was declared to be valid. In a long decision, discussing the subject fully, this decision has been reversed in the upper Court.

Airports

OHIO.—*Swetland v. Curtiss Airports Corporation*, District Court of the United States for the Northern District of Ohio, Eastern Division, July 7, 1930.—This is an action for an injunction for trespass and the maintenance of a nuisance.

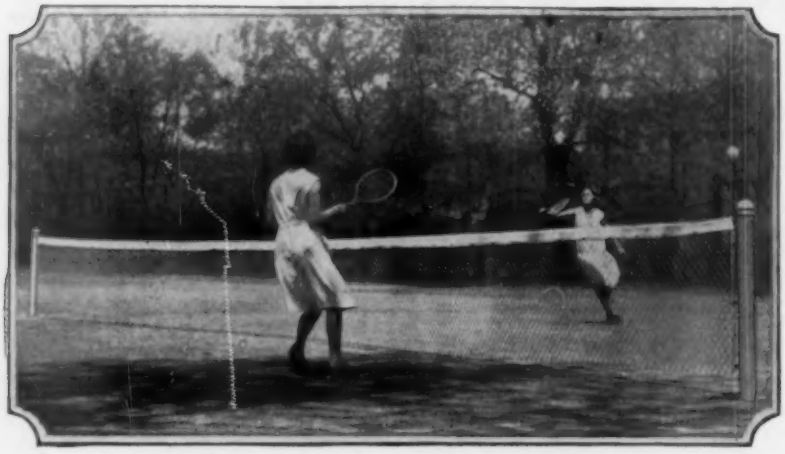
Plaintiffs are the owners of a high-grade country estate in a sparsely settled neighborhood near Cleveland, most of the property being in a more or less uncultivated condition. Defendants are owners and operators of an airport. Defendants' planes pass over plaintiffs' land both more and less than 500 feet above. The airport is well equipped, organized and conducted, with the most modern appliances.

The Court held that an airport is not a nuisance *per se*, but may be so located or conducted as to be a nuisance; that this port was not so located or (except possibly in a few minor particulars) so conducted; that the landowner below did not own the air space above 500 feet so as to make passage through it a trespass; that legislation with regard to passage through this air was a proper adjustment of rights under its police power; and that passage through the air space less than 500 feet above plaintiffs' land was a trespass and would be enjoined. "Until the progress of aerial navigation has reached a point of development where airplanes can readily reach an altitude of 500 feet before crossing the property of an adjoining owner, owners of airports must acquire landing fields of sufficient area to accomplish that result. To fly over the lands of an adjoining owner at lower altitudes, the owners of airports must secure the consent of adjoining property owners, or acquire such right by condemnation when appropriate enabling statutes are enacted. *Smith v. New England Aircraft Co.*, 170 N. E. 385, 391, 393."

(See also page 165 of this issue.)

WASHINGTON.—*City of Spokane v. Williams*, reported in *U. S. Daily*, June 17, 1930.—The city has the right to condemn land beyond its limits for an airport. The procedure is valid under a statute authorizing the field without express provisions for the taking of property outside the municipality, since this right is conferred by previous statutes giving the city broad powers of condemnation.

STEEL WIRE TENNIS NET



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Where nets can be stolen, and are stolen, the advantages of this net are obvious. It can be erected easily and quickly by any type of labor. Its installation is final . . . You can leave it on the court summer and winter. It need never be taken down. It is rust-proof and wear-proof. This net is an ideal solution to tennis court problems, and maintenance costs.

Pays for Itself Many Times Over the Very First Year—In Cost —In Convenience

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records prove that labor costs . . . erecting and removing nets each day on public courts . . . average five times the cost of the net itself. This terrific expense is also eliminated by the use of the American Chain Link Tennis Net.

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The canvas strip gives the player the same action when a ball hits the top of the net, as that occurring when a good cord net is used. Also the height of the net is always the same. It never varies. Thus a player can gauge his shots with absolute accuracy . . . a great advantage over the cloth net which requires frequent adjustments. When ball hits net, it rolls straight back instead of dropping dead to the ground as with a cloth net.

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American Chain Link Tennis Nets have proved their superiority in Chicago's public parks, and many other cities. Birmingham made a trial installation and in two weeks' time equipped all public park tennis courts with them. Experience has proved that it is the best and most economical tennis net obtainable. Investigate! Write for descriptive literature, prices, and other facts.

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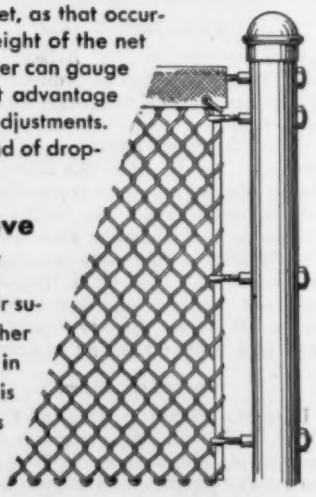

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Filling Stations

TEXAS.—*City of San Antonio v. Humble Oil and Refining Co.*, 27 S.W. (2nd) 868.—An ordinance regulating the location, construction and operation of filling stations is valid. A permit authorizing the construction of such a station within 300 feet of a church, contrary to ordinance, is invalid.

Billboards in Indiana

The Supreme Court, in an appeal by the General Outdoor Advertising Company against the Indianapolis Park Board, has sustained the power of Indiana cities to prohibit by ordinance the erection and maintenance of advertising billboards on private property within 500 feet of the city's parks or boulevards, refusing to follow cases to the contrary in Massachusetts in 1905, in Illinois in 1911, and in Missouri and Ohio in 1912. The decision points out that since these cases were decided, stringent city planning and zoning laws have very generally in this country been passed and upheld by the courts.

The Court intimates, however, that unless it can be shown that boards already erected are a nuisance, the owners of such billboards are entitled to compensation for them if they are ordered removed.

The outlines of the decision are given in the *U. S. Daily* for June 29, 1930; further comments on it will be found in the article by Albert S. Bard on pages 113 and 114 of this issue.

Zoning in Los Angeles

A Los Angeles zoning ordinance, scheduled in these notes, essentially the same as the ordinances formerly enacted, has just been passed for the purpose of making corrections and additions in the light of nine years of experience. A full description of that ordinance is given in "City Planning Impressions," No. 3—June 5, 1930, compiled by Huber Earl Smutz, Zoning Engineer of the city.

THE MONTH IN PUBLIC HEALTH

Conducted by JAMES A. TOBEY, Dr. P. H.

The Pest of Noise

NOISE has become such a nuisance in our modern machine age that a good deal of noise is being made about it. Studies of the detrimental effects of noise are being undertaken in the psychological laboratories of at least half a dozen universities, noise abatement commissions have been appointed in a number of cities, and many editorials on this important subject have been appearing in public health and medical magazines.

The effect of noise on efficiency is ably discussed in the *Monthly Labor Review* of the United States Department of Labor for June, 1930, the leading article in this issue summarizing many of the recently reported findings. Reduction of unnecessary noise in offices and workshops seems invariably to be conducive to efficiency and greater production, according to experiences cited in this anonymously written article. Many scientific observers are agreed that the effects of noise on various physical, mental and emotional functions of the body are, in general, not desirable. While the average person may accustom himself to a certain amount of more or less continuous din and clatter, a superabundance of it becomes definitely harmful.

What is the saturation point for city noise is discussed editorially in the *American Journal of Public Health* for July, 1930. According to this well-expressed editorial, the city of New York is now dangerously close to the saturation point, a fact with which most persons who have to labor in New York City will agree without hesitation. The investigations of the Noise Abatement Commission appointed by the Health Department of this metropolis reveal tremendous peaks of noise at certain places and at certain hours. Radio loud speakers, motor-trucks, riveting machines, blasting, steamship whistles, pile-drivers, police whistles, elevated trains, subway trains, automobile horns, street cars, and traffic generally, all contribute to the clamor and strident clatter which inflict the city worker. "There are many places," says this report, "where a tiger from Siberia or Bengal could roar or snarl all he wished without attracting the auditory attention of the passerby."

Noise intensity is measured by a unit called the "decibel," which is the smallest change the ear can detect in the power level of a sound. The unit is expressed logarithmically, that is, 20 decibels means the square of 10, or a ratio of sound of 100 to 1. Thus a noise level of 60 decibels indicates an intensity of noise at the sixth power of 10, or a million times above what the normal ear can hear. The noise of riveters has been found by actual test to measure 99 decibels, while a police whistle registers from 76 to 84, probably depending on the power of the blower. The various raucous sounds have all thus been catalogued.

The solution of the noise problem is a complex one, calling for active cooperation by police and health departments, by physicists and other scientists, and by the general public. For the peace and comfort of humanity, the problem must, moreover, be solved, and solved without undue delay.

Tourist Camp and Highway Sanitation

MOST state health departments are active every summer in making inspections and supervising the sanitary arrangements at automobile tourist camps. As a general proposition, only about one-half of the camps inspected can be and are approved. Sanction can be given to them only if the site is ample in size, properly sheltered, adequately supplied with pure water, capable of the safe disposal of sewage, and provided with other necessary sanitary facilities.

Although the state generally does its part in looking after camp and highway sanitation, it has been found difficult, according to *Ohio Health News* for June 15, 1930, to educate the traveling public to a sense of its own responsibility in the matter. The tourist ought to be firm in refusing to patronize unsanitary, poorly managed, and sordid camps, but public laxity in this regard has been the dominant influence in encouraging the establishment and maintenance of inferior and possibly dangerous camps. This situation is a menace and adds to the troubles of state and local health officials.

Approval of wayside stands which comply with all health requirements is now often indicated in many states by signs reading "Sanitation Approved" or some similar phrase. In the *North Carolina Health Bulletin* for July, 1930, H. E. Miller, Chief Engineer of the State Board of Health, describes the system there in some detail. A strong plea is made for the cooperation of the motorist, who ought, of course, to look for one of these signs before he has the temerity to patronize any roadside stand.

A Doctor in the Cabinet

AT their annual meeting in Detroit in June, the American Medical Editors and Authors Association passed a resolution advocating a physician as Secretary of Health in the President's Cabinet. In commenting on this proposition, the Detroit *Free Press* for June 27, 1930, states editorially that nothing would be gained by such a procedure, that the cabinet is large enough now, and that doctors are no less competent than lawyers to sustain and vitalize a profession without cabinet assistance.

Although there has been much agitation in past years for a Secretary of Health in the cabinet, it is the consensus of opinion among modern sanitarians that such a position is neither necessary nor particularly desirable. The correlation of all Federal health activities under the direction of an assistant secretary in an appropriate department would be a progressive step, but it would hardly be reasonable to demand a secretaryship.

Congress has lately been rather liberal in passing national health legislation. In addition to the Parker bill for Federal health coordination, recently commented upon in this department, Congress adopted a law in May which provides for a National Institute of Health by expanding the present Hygienic Laboratory of the United States Public Health Service.

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Now that trucks are built for speed, these newest Goodyear tires deliver all the advantages to trucks which balloon tires brought to passenger cars.

Because they absorb the jolts, they protect the truck mechanism —reduce vibration—bring down maintenance and repair costs. They protect the load from jars—they enable trucks to cover more miles per day, make more deliveries per day, because they travel faster, hold the road on curves, and provide greater traction on or off the pavement.

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Public Drinking

IT is the duty of the public to demand cleanliness not only at wayside restaurants and hot-dog emporiums, but at all places, rural or urban, where soft drinks are served. Usually the city health department has only a limited number of sanitary inspectors, who obviously can make inspections only at infrequent intervals. Thus, in New Haven there are, according to the *Monthly Health Bulletin* of that city for May, 1930, some 425 places where food or drink is served, with only one inspector to look after them. It devolves, therefore, upon the public to be discriminating and to insist upon rigid cleanliness.

New Haven issued a very attractive special Fourth of July number of its health bulletin, decorated with a small American flag, and printed in two colors. A new and much improved type has recently been adopted for this bulletin, which is one of the best-edited and most interesting which come across the editor's desk. Dr. John L. Rice is the local Health Officer and editor of the bulletin, with the assistance in this latter job of Charles H. Amerman.

Selecting Health Textbooks

SCHOOL days are not unduly far off, and the problem of choosing authoritative and useful textbooks for health education will soon have to be faced. In the Health and School section of *Hygeia* for July, 1930, the editor, J. Mace Andress, Ph.D., offers some practical suggestions regarding the choice of material for the health education program. Dr. Andress wisely points out that in the modern scheme of education a textbook seems as necessary in health as in other subjects.

The criteria which determine a good textbook on health are, according to Dr. Andress, its scientific accuracy, its tendency to promote wholesome attitudes, its practicability, its interest, its physical make-up so that it may be studied without causing eyestrain, and its utility for teaching. Although he modestly refrains from mentioning them, Dr. Andress is author or co-author of a number of excellent schoolroom health texts.

As previously pointed out here and elsewhere, an annotated list of practical public health books that should form the nucleus of a health library for the city hall is in The Municipal Index for 1930.

An Appraisal of a State's Health Work

A SPECIAL commission of public health experts was recently appointed by Governor Franklin D. Roosevelt of New York to study the public health needs of the state and of the operations of the various state and local health authorities and their practical interrelationships. The first meeting of the committee was held on June 5, 1930, under the chairmanship of Dr. Livingston Farrand, and at that time investigations of a dozen public health problems of outstanding significance were assigned to various members of the committee.

Such an inventory of state public health work is of great value. Seventeen years ago, a similar appraisal in New York resulted in many improvements in the state health laws and the administrative health procedures of the time. As Dr. Thomas Parran, Jr., the State Health Commissioner, has pointed out, "The studies of the Governor's Health Commission will be devoted to making available to the people of New York State the practical application of every proven means of health protection and disease control."

Banishing Bad Times by Well-Timed Public Works

PUBLIC works *do* afford an effective aid in stabilizing our economic balance. This, at any rate, is the matured opinion of the Committee on Recent Economic Changes* of the President's Conference on Unemployment. The Committee is persuaded that if Federal, state and municipal authorities were prepared to act in concert at the first warning of an approaching economic depression, even a relatively small volume of public construction added to our normal amount would be ordinarily sufficient to be an appreciable factor in restoring reasonable economic balance.

"But," the Committee wisely adds, "obviously, it is only one factor. The business community cannot expect to operate without restraints of its own or to counterbalance careless excesses by undue reliance solely on public construction. In its proper place, however, as one among a number of steadying influences, and at its proper time, the acceleration of public construction may well become useful. This is the conclusion which emerges from consideration by the Committee of the information put before it."

The normal yearly volume of public construction, according to a survey made for the Committee by the National Bureau of Economic Research and the Department of Commerce, is $3,500,000,000. In this work 900,000 are directly employed.

The Committee is emphatic in urging that the national emergency be not made the occasion for bringing forward ill-considered or economically unsound plans in the name of charity. We are particularly fortunate in the number of worthy projects lying before us. It is unnecessary to resort to makeshifts. The relation of long-range planning to this movement, particularly if it is to be made a permanent public policy is quite obvious.

The "timing" of public construction is more important, the Committee finds, than its volume. "If properly timed, as the pendulum of employment starts to swing in an unfavorable direction, the influence of the prompt expedition of public works is effective out of all proportion to its size." Substantial projects cannot be hastily gotten up. They should be carefully matured before they are initiated. Nothing short of long-range planning will meet this need and put our public authorities in a position to push sizable projects promptly on the first signs of industrial recession. The absence of such planning opens the door to unwise ventures, waste and even corruption. It also fails to meet the stabilization need.

As the Committee put it: "An unplanned form of emergency relief for unemployment, public construction, has long been tried and found in great measure wanting. Nor does it appear practicable or necessary on any *large scale* to withhold expenditure on public construction during years of prosperity in order to accumulate a reserve of work during business depressions. The skillful timing in the use of a comparatively small margin of public construction is far more important. In this lies the real advantageous opportunity for practical influence upon the economic balance.

"Long-range planning and budgeting are necessary if the full value of public works as a stabilizing influence is to be developed. At present there are many obstacles in the way of pushing public projects with such speed as is possible on private work, especially during the steps preliminary to contract-letting. Fortunately, the recent trend toward city and regional planning makes the task an easier one than it would have been even a few years ago. City planning commissions, bureaus of municipal research, and special committees appointed by the heads of local governments, city, county, and state, have contributed to this development. Comprehensive physical planning of public works within each city and region is a clear and evident need. This enables sites to be acquired in advance and plans to be made well ahead of the actual start of the work, so that when an emergency comes, discretionary projects can go ahead with assurance that they are properly located and well adapted for the purpose for which they are intended, and without the delays that might ensue if the relative merits of different locations and alternative plans for structures had to be debated or else decided arbitrarily on the basis of hasty consideration."

The report is accompanied by an elaborate study of "Planning and Control of Public Works," by Dr. Leo Wolman, of the National Bureau of Economic Research in New York City. This study indicates that public construction had come by 1928 to constitute 35 to 40 per cent of all construction. In amount it has almost doubled since 1923. It is hoped that this total will show a heartening increase for 1930. There is every reason why it should continue at a high level for several years, at least. Traffic relief, water-supply, sewage disposal, the provision of hospital and school facilities, and the development of airports, are among the many needs that will make increasing demands upon our growing cities.

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* The members of the Committee are: Arch W. Shaw, Chairman; Renick W. Dunlap, William Green, Julius Klein, John S. Lawrence, Max Mason, George McFadden, Eugene Meyer, Adolph C. Miller, Lewis E. Pierson, John J. Raskob, Louis J. Taber, Daniel Willard, Clarence M. Woolley, Owen D. Young, and Edward Eyre Hunt, Secretary.

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THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, Attorney at Law

When a council's determination as to population, etc., is conclusive.—Although different results were reached in Texas and Kentucky cases, the decisions appear to be in harmony on the point that where the validity of action of a city council depends upon the existence of a certain minimum population or some other similar fact, a determination of the fact by the council will not be disturbed by the courts unless the determination is palpably without support.

In the Kentucky case (*Moss v. Board of Councilmen of City of Frankfort*, 21 S. W. 2d, 813), the validity of a tax levy depended upon whether the city had a population of 10,000, as required by the Kentucky constitution to sustain a levy at the rate imposed. The last official census—the Federal census of 1920—showed 9,805 population. Without any tangible basis for the determination, and acting purely upon reputation and upon a statement that there were fewer vacant houses than when the census had been taken, the City Council concluded that the population exceeded 10,000. But the Court annulled the tax levy on the ground that there was no valid adjudication as to population. The Kentucky Court of Appeals said:

"The population of a city may be ascertained by the city council, and if the methods followed and the evidence adduced thereby are such as will enable the city council in the exercise of reasonable discretion to determine that the city has more inhabitants than is shown by the United States census, it is within its rights in applying a tax rate justified by the actual population. But such evidence must be something of substance, and such as to induce a reasonable man, in the exercise of reasonable discretion, to believe that the city has a population large enough to justify the tax rate which is imposed."

In the Texas case (*State v. Etheridge*, 20 S. W. 2d, 808), decided by the Texas Court of Civil Appeals, the question involved was the right of a town to avail itself of statutes applicable to any city, town or village having one or more manufacturing establishments. It was decided that the determination of the Council that there was one or more manufacturing establishments in the town was conclusive, in the absence of fraud. Incidentally, the opinion disclosed that there were three cotton gins and a newspaper and job printing plant in town.

Abutter held under no greater sidewalk responsibility than the city.—"No greater duty rests upon an abutting owner to keep the walk adjacent to his premises in repair than devolves upon the municipality," declared the New York Supreme Court for Kings County in the case of *Degheri v. Brooklyn Daily Eagle*, 240 N. Y. Supp. 304. The Court decided that defendant was not liable for injury to a pedestrian who fell upon an iron plate in a sidewalk that had been made slippery by wear.

"Defendant was not an insurer of plaintiff's safety," said the Court, "and was not obligated to maintain the walk in front of the premises in a perfect condition, so as to render accidents impossible; it was obligated, however, to use reasonable care and reasonable prudence to discover any defective condition in the walk, and to remedy the same, if such imperfection was of such a nature that a reasonably prudent person would have anticipated that it would be likely to cause injury to those lawfully using the walk."

Important Legal Decisions

involving municipalities, as reported in this department during 1929, are indexed and classified in the 1930 MUNICIPAL INDEX. This reference list, commencing on page 151 of the new INDEX, supplements lists appearing in the 1929 and 1928 volumes, and covering all decisions reported in this department since its inception in 1924.

Three votes held two-thirds of five, one councilman not voting.—Under a statute requiring an ordinance to be passed by a "two-thirds vote of the council," it was held by the Kentucky Court of Appeals (*State v. Etheridge*, 20 S. W. 2d, 808) that where five aldermen (the entire Council) were present and three of them voted for the ordinance, one against and one not voting, the measure was legally adopted. The opinion recognizes that, although there are court decisions to the contrary, the general holding of the courts throughout the country is that the number of lawful votes actually cast decides a question, and that if a quorum is present, an election or measure is determined by the majority of votes actually cast, although an equal or even a greater number refuse or fail to vote.

Requirement that applicant for restaurant license furnish references, upheld.—The township of Pequannock, Morris County, N. J., adopted an ordinance requiring licenses for the operation of restaurants. One section provided that an applicant for a license must give at least two references as to his character and reputation, and that no license should be granted until the governing body was satisfied as to the applicant's fitness. Upholding the validity of this ordinance, in the case of *De Roos v. Chapman*, 147 Atl. 570, the Supreme Court of New Jersey said:

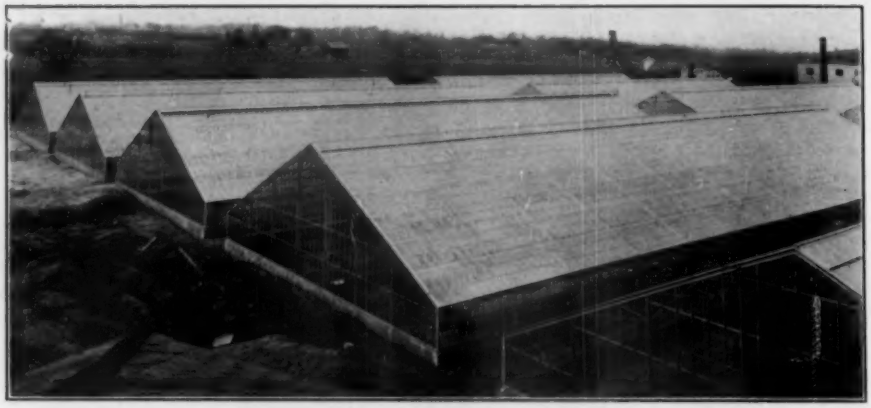
"The relator further contends that the provisions of the ordinance in question with respect to license are void as violative of the rights of private property guaranteed by the state and federal constitutions. We think they are not. We think rather that they are plainly a valid exercise of the police power in the interest of the public health, safety, and welfare. The place in question was in a residential district, very near established schools and churches, and, of course, the public welfare and health were concerned with the character and fitness of the applicant for the license."

Regulation requiring foodstuffs to be covered held to be void.—The Pennsylvania Department of Health adopted a regulation as follows: "No person, firm or corporation shall expose for sale in any public place in the Commonwealth of Pennsylvania articles of food or foodstuffs which are eaten uncooked, unless such articles of food or foodstuffs are so covered as to be thoroughly protected from dust, dirt, flies and other vermin. Public places within the meaning of this regulation shall include grocery, delicatessen, confectionery, department stores and markets, and foodstuffs shall include candies."

In the case of *Commonwealth v. Abdella*, 21 Pa. Munic. Law Rep. 91, the Court of Common Pleas for Cambria County, Pa., adjudged the rule to be void, saying:

"It will be noted that under the head of 'foodstuffs which are eaten uncooked' will be listed, among others, bananas, apples, cabbage, lettuce, carrots and many other bulky foodstuffs. It will also be noted that the regulation provides that they 'shall be covered so as to be thoroughly protected from dust, dirt, flies and other vermin.' In order to give the protection required by the regulation, it would be necessary, in order to display produce to customers, to have it covered practically in glass cases or containers. It would further mean that farmers who bring their produce to the market-places in the city for sale would be practically prohibited from engaging in such business, because of their inability to furnish the needed protection and still display and dispose of their goods. Even in the case of merchants having places of business, it is impracticable and unreasonable to require that these bulky foodstuffs offered for sale and exhibited must be given such protection as is required by this regulation. We can understand why sufficient

Master Construction Glass-Overs for Sludge Beds



Part glimpse of the eleven Sludge Bed Glass-Overs at Dayton, Ohio, Sewage Disposal Plant. Metcalf and Eddy, Engineers

Eleven Glass-Overs Multiply Dayton's Sewage Sludge Drying by Four Besides Controlling Odors

HAVING become a generally accepted fact among engineers, that sludge will dry approximately four times as fast under glass as in the open, it is obvious that the size of the beds can be cut down a quarter. Or the same size give four times the results. Exposed beds make an average of seven dryings a season. These Lord & Burnham Glass-Overs, are figured to deliver from 17 to 25, or an accepted average of 20.

Taking advantage of this, the City of Dayton, has as part of its new Sewage Disposal Plant, eleven of these Glass-Overs, covering approximately 2½ acres.

Aside from the increased efficiency of the sludge drying, any objectionable gases are under control. They can then, by the ventilation system, be liberated in quantities not objectionable.

This is said to be the largest group of Glass-Overs yet erected. The city-owned land surrounding the site is being developed as a municipal golf links and recreation area. This, and other considerations, made it essential that every precaution be taken to minimize objectionable conditions.

Glad to send you a complete description as furnished by the engineers.

Lord & Burnham Co.

Sludge Bed Glass-Overs

Graybar Building, New York City
208 South LaSalle Street, Chicago
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protection should be given to protect from flies and similar vermin, but to require a thorough protection from dust and dirt for this class of foodstuffs is without reason, unfair and impracticable. We may not strike out the unreasonable parts of this regulation and leave the reasonable part stand, for this would be an amendment to the regulation and not construing it."

Soldiers' memorial erected by popular subscription could be moved, but site could not be diverted to private use.—A soldiers' memorial park was established in a Wisconsin town by public subscription. The site was deeded to the town for "monumental purposes only." An electric railway company, desiring to acquire the land, secured electoral assent to removal of the monument from the park to a new site in the town cemetery. The company agreed to make the removal at its own expense, and to provide a $1,000 perpetual care fund for upkeep of the memorial and its surroundings. The old site was deeded to the railway company.

But, in the case of *Matson v. Town of Caledonia,* 227 N. W. 298, the Wisconsin Supreme Court decided that plaintiff taxpayers were entitled to cancellation of the deed, on the ground that the town was powerless to divert the land to other use than for memorial purposes. However, the Court found that under the circumstances there was nothing to prevent removal of the memorial to the town cemetery. On that point, the opinion says:

"The deed of the property here in question did not require the existing memorial to be maintained on this plot of ground. The only requirement is that the ground shall be 'used perpetually only for monumental purposes.' The subscriptions by which this fund was raised contain no restrictions as to the place where the memorial was to be erected, except that it should be in the town of Caledonia. Our attention has been called to no statute or rule of law that limits the power of the town meeting to direct the removal of an existing memorial to a new location. The legal title to the memorial became vested in the town when the memorial was erected on land belonging to the town, in trust, however, for the purpose for which it was erected. In the absence of some limitation upon their power, the electors of the town had the same power to change the location of this memorial that they had to change the location of any other property belonging to the town, provided that such change of location was not inconsistent with the purpose for which the memorial was erected."

City held liable for unwholesomeness of water-supply due to negligent contamination by blocked sewer.—A city, in attempting to enforce discontinuation of use of an old private sewer constructed of clay pipe and not having its joints cemented, blocked the outlet. Resulting pressure caused seepage of the sewage into a nearby water-supply line, and a typhoid epidemic followed.

In the case of *City of Salem v. Harding,* 169 N. E. 457, the Ohio Supreme Court decided that the trial court erred in ruling that the city could not be held responsible for resulting death. The Court said:

"Still adhering to the proposition that the construction and institution of a sewer system is a governmental function, we are nevertheless of the opinon that the city is liable for any obstruction thereto which is known to the city, if the city through its proper officers knew or in the exercise of ordinary care should have known that the obstruction would have an injurious effect upon life or property. The city being responsible for its negligence, . . . may not escape that responsibility on the sole ground that it was acting in the exercise of its police power."

Ordinance held to provide for separate license tax for each show operated by same party.—An ordinance imposing an annual license tax of $100 against "any person . . . who shall own or manage any . . . picture show within the limits of the city," requires one who operates two shows at different places to pay a separate tax for each place. (*City of Drumright v. Strand Amusement Co.,* 282 Pac. 128, decided by the Oklahoma Supreme Court.)

Measure of city's liability for piling débris on abutting lot.—Where dirt and débris scattered upon abutting property by a city in making a street improvement can be readily removed at slight expense, the city is liable for the reasonable cost of removing the same and of restoring the property to the condition that prevailed previously. (Kentucky Court of Appeals in *City of Hazard v. Combs,* 16 S. W. 2d, 1022.)

City held not liable for death of boy trespassing upon pond.—A storm sewer outlet discharged upon a tract of land, forming a pond that was ten feet deep in one place. This was on private land, the owner assenting to the city's discharging water there. While children were playing at the outlet, one of them was drowned.

In the case of *Raeside v. Sioux City,* 229 N. W. 216, the Iowa Supreme Court decided that neither the city nor the landowner was liable. The Court said that there was no liability under what is known as the legal doctrine of "attractive nuisance." That is the rule that one who maintains a thing on his premises that has a natural tendency to allure children, whose attraction by it should have been foreseen, is liable for injury resulting to a child, where care has not been used to guard against such accidents.

Court refused to overrule the judgment of village officials in arranging for a water-supply from wells.—When the village of Canastota, N. Y., prepared to issue bonds to provide a water-supply from deep wells, a taxpayer sued to enjoin the project as being improvident. But, in this case—*Balducci v. Strough,* 239 N. Y. Supp. 611—the New York Supreme Court for Madison County said:

"It is manifest that the village is confronted with a difficult proposition. Obviously, it has not the resources of a great city to bring in water from remote regions. Either this must be done, or a local water-supply must be found. I do not think the action of the officials in seeking to provide a water-supply by wells should be interfered with by the courts, unless the proposed action of the officials is of such a nature as to demonstrate, without question, that absolute and reckless waste of public funds will result. In other words, the Court should not substitute its judgment for that of duly constituted officials in the absence of fraud or bad faith. Bad judgment is not bad faith."

Plaintiff also complained that the bond issue was voted because of false statements and extravagant promises made to the voters. But the Court said: "Whatever may have influenced the voters, they have expressed their collective will at the polls. The Court cannot go behind that expression to determine what pre-election promises and statements motivated the voters in voting for the proposition."

City held empowered to pay for light plant out of cash and plant revenues, statutory provision for a tax or bond issue not being exclusive.—That a Nebraska statute authorizes cities of the second class to pay for a light plant by tax levy or through a bond issue does not imply an exclusive means of financing the acquisition of such a plant; provision may be made for paying partly out of cash on hand and partly by pledging future revenues of the plant. (Nebraska Supreme Court in case of *Carr v. Fenstermacher,* 228 N. W. 114, involving proceedings by the city of Sargent, Nebr.)

Public market may be reserved to producers of goods sold.—"Goods may be offered for sale in this market only by producers who have grown and brought them to market," reads an ordinance of Waterbury, Conn., governing the municipal market in that city.

In the case of *State v. Cullum,* 147 Atl. 804, the Connecticut Supreme Court of Errors upheld the validity of the measure; overruling a contention that it unconstitutionally discriminated against dealers in products not grown by themselves. Said the Court:

"If the municipal Board of Aldermen were of the opinion that the public health was best subserved by the establishment of a public market where none but the grower of his own agricultural products could market them, we cannot hold as matter of law that the legislative opinion was unquestionably unsound. Nor can we hold that products so grown and offered for sale will not be more beneficial to the people who are able to buy such products than similar purchases from dealers who have purchased them from distant points. The economic advantage to the producers in and within a marketable area to Waterbury is obvious, and the indirect advantage to Waterbury as the business center of this locality is apparent. The ordinance operates upon all producers constituting the class equally. The differences in characteristics between these two classes justify as a reasonable classification the division into these two classes."

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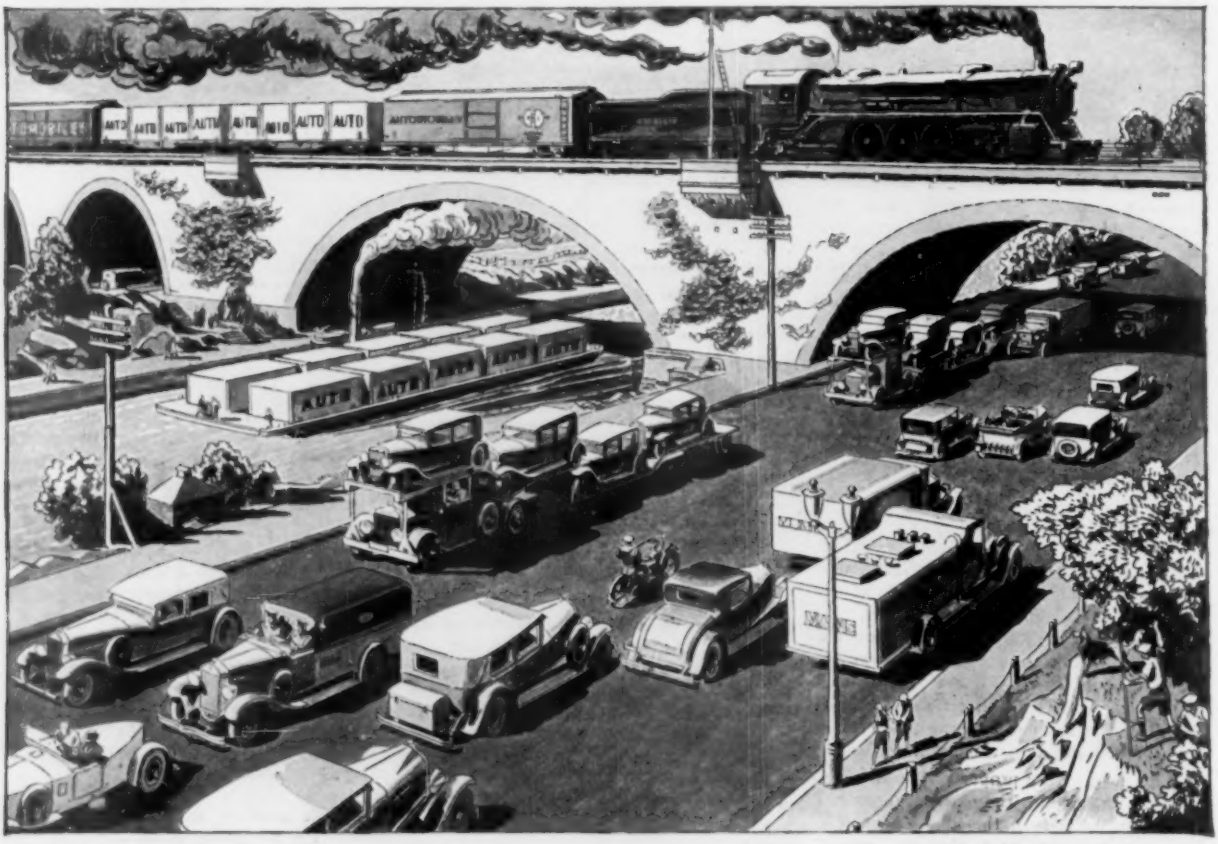
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MUNICIPAL AND CIVIC PUBLICATIONS

Prices when mentioned do not include postage unless so stated. Pamphlets, reports and free publications should be ordered direct from addresses given.

Water Supply and Utilization

By Donald M. Baker, Consulting Engineer, M., Am. Soc. C.E., and Harold Conkling, Deputy State Engineer of California, M., Am. Soc. C.E. John Wiley & Sons, Inc., New York. 1930. 495 pp. $6.00.

For the first time a book has been brought out devoted to the problem of water-supply and the utilization of water from the viewpoint of the arid section of the United States where in but a few places crops may be raised without irrigation. The present volume discusses the importance of water-supply and the climatic differences between the East and West. Chapters are devoted to climatology, precipitation, evaporation, transpiration, streamflow and runoff, water rights in surface streams, determination of the available water-supply, groundwater hydrology, groundwater in alluvial deposits, water right in underground water, purposes for which water is utilized, conflict and correlation between the uses of water, the administration of streams, the valuation of water rights, and the quality of water.

Perhaps one of the most important matters treated in this book is water law and its administration as it has been developed in the arid states of the West.

Principles of Real Estate Practice

By Roger B. Washburn. McGraw-Hill Book Co., New York. 625 pp. $5.00.

This compact volume aims to present the essentials of the real estate business for the beginner. It gives a careful, lucid, yet elementary, discussion of a wide range of matters of interest to the would-be realtor, including salesmanship, insurance, leases, building and zoning regulations, appraisals, liens, mortgages and a host of minor matters. There is virtually nothing on the theory of land values. City planning is rather superficially treated. Its severest limitation is the fact that illustrative material is drawn almost exclusively from Boston.

Standards for Maternity Care. — The Children's Welfare Federation, New York. 1930.

The Children's Welfare Federation, New York. 1930. 31 pp. 25c.

These standards, prepared by the committee on maternity care of the Children's Welfare Federation of New York and a committee appointed by the New York Obstetrical Society, outline the scientific and administrative procedures and technique necessary in prenatal care, adequate delivery service, and after-care. The qualifications and responsibilities of the medical, nursing, and social service personnel are also described, and suggestions are made as to the space, equipment, and facilities needed. An appendix gives suggested record forms. This is a valuable and useful pamphlet.

JAMES A. TOBEY.

Taxes and Special Assessments in the Down-town Business District of Kansas City: 1909-1929

A 32-page multigraphed study made by the Kansas City Public Service Institute presents statistical data covering general and special assessments on business property over a period of 20 years. One of its objects is to compare amounts paid in this district with the city as a whole. This is the first section of a widespread and general study of improvement assessment for the whole city. (Apply to the Institute, Orear-Leslie Bldg., Kansas City, Mo.)

A. S. A. Bulletin

The first printed issue of the membership publication of the American Standards Association appears under date of June, 1930. The Bulletin is intended as a record, not only of Association activities, but also of all important developments in the field of industrial standardization and specification work in the United States and abroad. (Apply to the Association, 29 West 39th St., N. Y.)

Proceedings, Conference on Highway Engineering (Michigan)

On February 11, 12 and 13 at the University of Michigan, was held the sixteenth of these annual conferences, under the direction of the College of Engineering with the cooperation of the Michigan State Highway Department and the Michigan Association of Road Commissioners and Engineers, as an aid to the understanding and solving of highway problems. The conference is reported in a paper-bound booklet of 340 pages (University of Michigan Official Publication, Vol. XXXI, No. 72), which contains the text of 22 papers contributed to the conference, as well as the proceedings of the annual business meeting of the Association, and the attendance list. Among the subjects treated are the general status of highway transportation, the development of a state highway system, highway legislation and finance, soft particles in concrete aggregate, concrete pavement maintenance, bituminous retread, state and county highway traffic control, uniform traffic signs, railway crossings, control of highway loading, motor-vehicle safety equipment, protection of school children, state parks and the highway system, airports, Pan-American highways, township highways, and truck terminals. (Apply to College of Engineering, University of Michigan, Ann Arbor, Mich.)

County Expenditures for Highway Construction and Maintenance

A 36-page mimeographed summary compiled by the American Road Builders' Association, giving the expenditures for 1929 and 1930 by 1,066 counties in 44 of the states. The last page gives the total of highway and bridge expenditures for construction and for maintenance in each year for the entire group of counties. (Apply to American Road Builders' Assn., National Press Bldg., Washington, D. C.)

Control and Rate Report of Chicago Water Bureau Survey

A special committee appointed by the Committee of Finance of the Chicago City Council for the purpose of conducting a general survey of the Chicago Bureau of Water has just issued this report, which has to do with the first phase of the survey, dealing with the control of the water-supply and with water-rates. The report is largely concerned with the desirability of providing for a complete metering system. There is much useful information both on the question of metering and of rates. 138 pp. (Apply to Municipal Reference Library, 1005 City Hall, Chicago, 10c postage.)

Reading Region—Reconnaissance Survey

Basic Requirements of a Regional Plan. Prepared for the Community Council of Berks County, Pennsylvania, by John Nolen, city planner, and his associates. "The purpose of the Reconnaissance Survey is to obtain a general conception of the physical features and regional problems of Reading and its region, the trend of development, the local customs, etc., to serve as a definite basis for the outlining of a program of regional planning procedure and action." Various problems which must be faced in the development of the region are discussed and recommendations are made. (Apply to Dr. Nolen, Harvard Square, Cambridge, Mass.)

Building Efficiency Into the City

W. J. Austin, President of the Austin Company, of Cleveland, contributes to the July issue of *The Nation's Business* a 3-page article on the development of the ideal city as a high-efficiency industrial machine. City planning from this point of view becomes a part of the business man's job and includes centralized transportation, in-town workers' housing development, carefully planned zoning, etc. 30c. (Apply to the magazine, Washington, D. C.)

The City Manager Plan at Work

What Those Who Live in Manager Cities Think of Their Government. This pamphlet of 30 pages is based on opinions obtained by the National Municipal League from questionnaires sent to "leaders of public affairs in manager cities throughout the country." The comments, with a line giving the occupation of each individual quoted, are listed alphabetically by states and cities, the population of each city and the date of its adoption of the manager plan being indicated in the margin. 10c. (Apply to the League, 261 Broadway, New York City.)

Civic Pittsburgh

Facts and Figures about Your Business. By J. C. Slippy, for over ten years Chief Accountant in the office of the Mayor. Intended as a reference work for citizens and schools, this third edition of Civic Pittsburgh includes "the first organization chart of the county government ever published, a brief statement of the functions of each county office, and important financial data covering county affairs." 46 pp. 50c. (Apply to Mr. Slippy, Pittsburgh, Pa.)

Summary of Provisional Birth, Death, and Infant Mortality Figures in the Birth Registration Area: 1929

This multigraphed report of the Bureau of the Census includes statistics for all of the United States except South Dakota and Texas, which were not in the birth registration area in 1929, and Utah, from which complete transcripts for 1929 were not received. 20 pp. (Apply to the Bureau, Department of Commerce, Washington, D. C.)

Social Orientation

A Program in Community Culture. The seventeenth annual report of the Jewish People's Institute in Chicago, prepared by Philip L. Seman, General Director, gives a graphic account of the activities of this unit in the Jewish Community Center Movement. 158 pp. (Apply to the Institute, 3500 Douglas Blvd., Chicago, Ill.)

Massachusetts Federation of Planning Boards

This report of the Sixteenth Annual Conference of the Massachusetts Planning Boards, held in Fitchburg, Mass., in October, 1929, reproduces papers by Charles Sumner Bird, Jr., Joseph Lee, L. H. Weir, Edward T. Hartman, and Harold S. Buttenheim. Bulletin No. 25. 48 pp. (Apply to the Federation, 30 City Hall, Boston, Mass.)

Juvenile-Court Statistics, 1928

This second annual report, Bureau Publication No. 200 of the Children's Bureau of the Department of Labor, "is compiled from information supplied by 65 courts cooperating with the Children's Bureau in the plan for obtaining uniform statistics of delinquency, and dependency and neglect cases dealt with by juvenile courts." 76 pp. 10c. (Apply to the Superintendent of Documents, Washington, D. C.)

Housing Conditions in Denver

The most recent social welfare pamphlet issued by the City Club of Denver, is a frank presentation of facts concerning conditions of living in the city's "Objectionable Areas"; with "Major Obstacles to Relief" and "Remedial Suggestions" appended. Cumulative neglect and poorly enforced ordinances have created a situation of squalor, filth and insanitation which threaten to grow to greater proportions in the near future if the present administration does not take cognizance of it, says the committee, whose report, though limited in scope, might well serve as a model for interested citizen bodies in other cities. 20 pp., illustrated. (Apply to Allen Moore, Secretary and Treasurer, 616 University Bldg., Denver, Colo.)

Graceful ARCHES OF CONCRETE THAT SUPPORT MULTI-TON LOADS

First Prize, 1930, Phoebe Hodson Fowler Award, American Society of Civil Engineers, for works of outstanding merit in the architectural design of bridges.

Raritan River Bridge, near New Brunswick, New Jersey. Total length 1902 feet; roadway 30 feet wide; two footwalks each 6 feet wide. Six main arches of 202 foot span each. Built by New Jersey State Highway Commission; Morris Goodkind, Bridge Engineer, Parker and Graham, Inc., General Contractors, Paterson, New Jersey.

ADEQUATE and substantial spans, at strategic points, make the crossing of streams merely an incident—a matter of a few moments. . . . Strength, durability, beauty of design, and construction economy—these essentials in bridge construction are qualities which have distinguished portland cement concrete in every building project. . . . Correctly mixed and formed, concrete endures through generations, assuring a freedom from maintenance—of bridge and roadway—that contributes to the economies which attend construction.

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Street Lighting Practice

By Ward Harrison, Director of Engineering, Edison Lamp Works, Nela Park; O. F. Haas, Assistant General Manager, Atlantic Division, National Lamp Works of General Electric Co.; and Kirk M. Reid, Engineering Department, Edison Lamp Works. McGraw-Hill Book Co., New York. 1930. 270 pp. $3.50.

The appearance of this volume within a year after Stahl's "Electric Street Lighting" is symptomatic of the increasingly realized importance of adequate street lighting, especially when the mounting total of traffic accidents is considered. Thirty per cent of these, according to a study reported in the book at hand, occur after dark. Both treatises reflect the technical advancement in the subject, and constitute the work of specialists, having as their respective backgrounds the two largest electrical establishments making street-lighting apparatus. The more recent work, as its title indicates, emphasizes the practical side, having relatively little of the theory of street lighting.

Mr. Harrison and his associates present a compact, comprehensive survey of the street-lighting field, including a brief historical treatment; a discussion of the advantages and objectives of street lighting; the development and present status of lamps, glassware, posts, distribution and control systems; the manner of seeing at night, with different intensities and arrangements of lighting, and the zoning of intensities, etc., according to needs; the matter of maintenance and operating costs; the financing of street-lighting improvements by cities; contracts and specifications. In the appendix is a section on photometry and its applications; a statement of street-lighting principles; the highway lighting bill presented to the Ohio Legislature; and a 23-page section of representative candlepower distribution curves.

The Bristol, Bath, and District Regional Planning Scheme

By Patrick Abercrombie, Professor, Department of Civic Design, University of Liverpool; and Bertrand F. Brueton, Town Planning Officer to the Corporation of Bristol. Hodder and Stoughton, Ltd., Warwick Square, London. 1930. 167 large quarto pp., in heavy boards with large folding maps in accompanying case, with uniform cover. 21s. net.

The report is arranged in four parts, including: A Regional Survey of Existing Conditions; A Regional Scheme (outlining policy for future growth); The Effect of the Regional Scheme; and Suggestions for Ensuring the Realization of the Scheme. Zoning is presented as important not only for the areas that are likely to be built up in the immediate future, but also for other areas such as pending legislation would bring within the jurisdiction of town planning authorities, and which would be zoned as agricultural land, low-lying land, etc. Communications are provided for in an exceptionally progressive manner, plans for local traffic roads on either side of through routes, recommendations for arterial road design, etc., being included. Other outstanding features of the plan include "possibly one of the first attempts in a regional report to give a landscape survey of the region"; also an outline of methods for architectural control. Emphasis is placed upon the necessity of landowners' cooperation for realization of the scheme.

New Uses for Capital

By Robert S. Field. Published by the author, 5322 Gainor Road, Philadelphia, Pa. 136 pp. $1.50.

Here is an approach to philanthropy in economic terms. The author analyzes America's needs, particularly in the fields of public health, unemployment insurance, recreation and old-age security, in terms of investment opportunities. His appeal is addressed largely to that minority who receive the major share of our national income. Their philanthropies could, he is sure, be much expanded, which appears preferable to seeking the same results through taxation. Gifts to cities allow for much greater imagination and experimentation, than ordinary public appropriations.

Salaries of City Officials in Wisconsin, 1930

Information Report No. 78 of the Municipal Information Bureau of the University of Wisconsin, compiled by Celia Harriman, is based on replies received from questionnaires returned by all of the 143 cities of the state, divided into classes according to population. 11 pp. mimeographed. 25c except to municipal officials or citizens of Wisconsin, to whom it will be sent free. (Apply to Municipal Information Bureau, University Extension Division, Madison, Wis.)

Planning and Control of Public Works

The findings of the Committee on Recent Economic Changes of the President's Conference on Unemployment, together with the fact-finding survey made the National Bureau of Economic Research for this committee, are published by the Bureau in a 250-page volume of the above title, substantial excerpts of which appear on page 173 of this issue. The report gives the latest figures for the country as a whole on the amount of construction work, and the results of the efforts which have been made to stimulate public construction since the period of financial depression at the end of 1929. $5. (Apply to the Bureau, 31 Madison Ave., New York.)

The Administration of the Gasoline Tax in the United States

By F. G. Crawford, Professor of Political Science, School of Citizenship and Public Affairs, Syracuse University. A revised edition of a 1928 pamphlet, issued as Publication No. 15, by the Municipal Administration Service, 261 Broadway, New York. (36 pp., 35c), traces the history of the gasoline tax, and shows gross yield by states, 1921-1929, with the state office responsible for collection, costs of collection, and distribution of the tax, with data concerning cities and the gasoline tax. (Apply to the Service.)

Progress of the Public Schools, 1924-1929

By William J. O'Shea. Board of Education, New York City. 168 pp.

This interesting volume is a report of the Superintendent of Schools in New York City to the Board of Education on the accomplishments of his five years in office. Though the emphasis is of course on the comparison between 1924 and 1929, the volume is sufficiently comprehensive to afford an excellent brief survey of the New York City school system. In 1929 the city had over one million pupils in its schools. Its school plant represents an investment of $400,000,000. The city has also shown an enterprise in the adoption and development of newer educational methods and correlative activities that has given its work wide influence.

The Constitution and Government of Texas

By F. M. Stewart and H. Clark. D. C. Heath & Co., New York. $2.00. 268 pp.

The authors of this little volume have given a model which might well be followed in other states. While their emphasis is on the constitution and government of Texas, they have throughout indicated prevalent or approved practices in other states, thus giving their work a tone of constructive criticism. There is a good, though brief, chapter on local government in the state, Texas being one of the older and more generous home rule states.

Municipal Art Commission, Los Angeles

The Annual Reports of the Municipal Art Commission of Los Angeles, Calif., for the years 1921-1929 are published together, with photographs of a number of buildings approved by the Commission, illustrating various types of architecture which have been adapted to municipal use in that city. The designs of all public buildings must be approved by the Commission, and no work of art becomes the property of the city until the Commission passes on it. The volume of plans considered increased from $1,780,351 in 1921 to more than $11,000,000 in 1929. 100 pp. (Apply to the Commission, Los Angeles, Calif.)

Unemployment and the Land

By W. R. Lester. Published by The United Committee for the Taxation of Land Values. 11 Tothill St., London, S. W. 1. 16 pp. 3d. An interesting argument attributing the unemployment of modern times to the separation of the worker from access to land and other natural resources. The author would, through taxation, seek to bring about the full use of land and, through this, full employment.

Present State of Cylinder Testing

A paper by Franz Eder, engineer, Robert W. Hunt Co., presented before the Compressed Gas Manufacturers Association, dealing with the results of cylinder testing carried out by members of the Association during the last few years. 14 pp. (Apply to Robert W. Hunt Co., 2200 Insurance Exchange, Chicago, Ill.)

Model Municipal Traffic Ordinance

The 1928 Model Traffic Ordinance as prepared by the National Conference on Street and Highway Safety, United States Department of Commerce, has been modified in certain particulars as dictated by two years' experience, and is now republished in revised form as approved by the Third National Conference, which convened in May, 1930. 74 pp. (Apply to the Conference, 1615 H St., N.W. See also page 23. (Apply to the Conference, 1615 H St., N.W., Washington, D. C.)

Ways and Means to Traffic Safety

A 62-page booklet just published brings together recommendations of the National Conference on Street and Highway Safety, including "findings of all Conference Committees and of General Meetings of Conference held in 1924, 1926, and 1930, as summarized and approved by Third National Conference, May 27-29, 1930." Included are addresses by President Hoover and Secretary of Commerce Robert P. Lamont at the Third Conference, also a list of committee members and general conference members. (Apply to the Conference, 1615 H St., Washington, D. C.)

School Boy Patrols

The American Automobile Association, realizing the need for uniformity in School Boy Patrol operation, has issued in mimeograph form, as Safety Department Bulletin 11, June, 1930, the standard rules and regulations adopted by the Joint Committee of the American Automobile Association and the National Safety Council at a meeting held in May. These rules and regulations are based on the study of School Boy Patrol operation in approximately 1,000 cities, and cover function, selection of members, size and officers, instruction and supervision, insignia, flags and whistles, hours of duty, relation to police officers, etc. (Apply to the Association, Pennsylvania Ave., at 17th St., Washington, D. C.)

The Government of the City of Atlantic City, N. J.

This report, prepared for the Atlantic City Survey Commission by the Detroit Bureau of Governmental Research, is an outspoken document which surveys all the municipal departments in Atlantic City except those dealing with education and fire protection. The investigation was made primarily to suggest possible economies in the operation of the city government. It is stated that "the reports are limited to comments and criticisms, the remedying of which it is believed might result in a reduction of the cost of government to the taxpayers, or in effecting an improvement in operation without additional expense." The criticisms are specific and to the point. 140 pp. $2. (Apply to the Detroit Bureau of Governmental Research, Detroit, Mich.)

The Children's Court, Buffalo, N. Y.

The Eighteenth Annual Report (1929) of the Children's Court of Buffalo, N. Y., consists of reports from the Clerk, Probation Officers, Superintendent of the Detention Home, and psychophysiological examiner of the Detention Home, giving statistical summaries of the cases handled. 34 pp. (Apply to the Clerk, Children's Court, Buffalo, N. Y.)

Cost of Local Government in Larimer County, Colo.

Bulletin 361, Colorado Experiment Station, Colorado Agricultural College, is a study prepared by G. S. Lemmedson (with the cooperation of the Division of Finance, U. S. Bureau of Agricultural Economics), looking to relief from the inordinate tax burden now borne by the agricultural interests, through introduction of more efficient and economic methods of local public administration. Defects of present practices are analyzed, and reorganizations recommendations presented. 84 pp. (Apply to the College, Fort Collins, Colo.)

Patents, Trade-Marks and Copyrights—Laws and Practice

By Oscar A. Geier, Patent Attorney. This 128-page cloth-bound volume, distributed free of charge, is the fifth edition of a useful handbook. The first section, on Patents—Law and Practice, explains who may obtain a patent, what may be patented, the procedure to be followed, etc. The second section is devoted to a discussion of Trade-Marks and Trade Names, including the distinction between the Copyright Law and the Trade-Mark Law. Information is also given about foreign patents and trade marks. (Apply to the author, 274 Madison Ave., New York.)

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Municipal Government and Administration in Iowa

Edited by Benjamin F. Shambaugh. Published by the State Historical Society of Iowa. 2 vols. 608 and 668 pp.

Almost twenty years ago the Iowa Historical Society undertook the publication of a series of volumes to which they gave the strange title of Applied History. The first volume contained a series of papers dealing with road legislation, the regulation of urban utilities, tax administration and similar practical subjects. Two similar volumes followed within the next two or three years. Then the war interrupted the project, and it was not until 1925 that a fourth volume, a comprehensive survey of county government in the state, was issued. The whole series has been under the able editorship of Prof. B. F. Shambaugh and constitutes a valuable contribution to the study of local administration.

The present volumes contain twenty-two monographic chapters by seven collaborators. The first of the two volumes, apart from several introductory chapters on the recreation, dissolution and status of municipalities, devotes itself to the various functionaries of the city. There are chapters on the mayor, the manager, the city clerk, solicitor, engineer and others. The method of volume two is functional. It treats of the administration of municipal finance, public safety, public works, zoning, health and similar activities. Both volumes are carefully annotated and thoroughly indexed. They present a very full and comprehensive picture of the workings of local government in the cities of the state. Dr. Shambaugh and his associates have given us an unusually thorough and creditable piece of work.

Some Southern Cotton Mill Workers and Their Villages

By Jennings J. Rhyne. University of North Carolina Press, Chapel Hill, N. C. 214 pp. $2.50.

Though this little volume deals with living and working conditions in Gaston County, N. C., as they existed before the prolonged labor troubles of last year, it goes far toward explaining them. It presents a vivid picture of the life of the mill working family and the housing and social conditions in which they live. There is some interesting material on the relation of juvenile delinquency to living conditions.

Roadside Planting

Prepared by the Roadside Beautifying Association. Country Life, Ltd., London, W.C. 1. 1930. 170 pp. Illustrated. 7s. 6d. net.

"R.B.A." has become a power for the preservation of outdoor beauty and the prevention of shadeless "ribbon road" development in England. Its activities are many-sided. In conjunction with various County Councils, it has evolved appropriate planting designs for some of the country's most notable recent highways. The researches and the practical experience brought to such tasks are given the broadest possible usefulness in the present book, which is designed as a guide to county surveyors and other public officials in the selection, planning, and planting of trees and shrubs. The arrangement of the material according to the characteristics of the plants—or of the soil—under consideration, as, for instance, "Trees and Shrubs Which Are Suitable for Suburban Roads and More Thickly Populated Districts"; "Trees for Producing a Spring Effect"; "Trees and Shrubs That Will Grow on Clay Soil," suggest that a similar volume based upon conditions in the United States would have a wide and practical usefulness.

County Parks

A Report of a Study made by the Playground and Recreation Association of America (publishers), New York. 1930. 150 pp. $2.00.

The latest addition to the now sizable library of authoritative works on recreation areas and their development prepared by the Playground and Recreation Association of America covers a field in which there is widespread present interest but for which hitherto little general data have been readily available. Its editor, George D. Butler, who prepared for the 1930 Municipal Index a brief record of county park development to date, presents in this effectively illustrated volume an elaborate, detailed record covering the history of county park development, legislation, finance, information on the establishment of a county park system, human uses, economic and social effects, and a bibliography of interest to park executives. An appended section presents statistics for county parks as of 1929, and summarizes legislation relating to county parks.

Pittsburgh, Pa.—Its Water Works and Typhoid Fever Statistics.

By the late Erwin E. Lampher, Managing Engineer of the Bureau of Water, and C. F. Drake, Superintendent, Filtration Division, Bureau of Water, Pittsburgh, Pa. 1930.

A 45-page booklet containing treatises on the Pittsburgh water-works written by the late Erwin E. Lanpher, and typhoid fever statistics in Pittsburgh since 1873, prepared by Mr. Drake. The City Council appropriated the necessary funds for printing this valuable publication, which was edited by Miss Violet M. Finch, Secretary to Mr. Lanpher. These treatises are used in the Pittsburgh city high schools in the civic and science classes, and universities throughout the country have requested them for municipal research work. Copies may be secured by municipal officials by writing to Miss Violet M. Finch, Bureau of Water, 416 City-County Building, Pittsburgh, Pa.

Corporation Contributions to Organized Community Welfare Services

By Pierce Williams and Frederick E. Croxton. Published by the National Bureau of Economic Research. 347 pp. $3.00.

This study was made at the request of the Association of Community Chests and Community Councils, representing 350 such organizations. The data were obtained through their cooperation, and the study financed by them. The authors find that over 20 per cent of the support of community chests is coming from corporations and that this proportion is increasing. In general, they find the number of corporate contributors remains large and representative. Almost half of the corporate contributions come from manufacturing enterprises. The number and volume of all corporate contributions has shown an encouraging increase within the last decade.

Plant Location

By W. Gerald Holmes. McGraw-Hill Book Co., New York. 275 pp. $3.00.

This little volume proposes to set down the principles, in accordance with modern scientific management, which should govern the location of industrial plants. The author, as practicing industrial engineer, divides his work into two major sections—choosing the general territory, and choosing the particular community. There is a very brief chapter, at the end, on the choice of the plant site. The author surveys the problems of markets, transportation facilities, power, labor supply and civic considerations familiar enough in chamber of commerce industrial surveys. Concerning these community surveys he sagely notes that they frequently include the information most easily obtainable and omit the details which one requires. He adds that "one of the greatest disadvantages of resorting to them is that they frequently are followed by volumes of correspondence and the visits of committees." Though necessarily elementary, the book is full of shrewd observations.

American Housing

By Edith L. Allen. Manual Arts Press, Peoria, Ill. 1930. 216 pp. $2.00.

Accepting the fact that the social and economic changes in American life from the earliest days have operated as a determining factor in the design of the American home, the author traces the development of the latter and shows how it has been operated upon by outstanding inventions, scientific discoveries, financial conditions, political situations, immigration and other elements of our civilization to the present time. Miss Allen believes that such studies as she has made, and further studies along the same lines, will form a sound basis for determining the needs of the future home which should minister to the physical, economic, mental, spiritual, and moral well-being of the individual and the family.

Social Welfare Laws of the Forty-Eight States

Published by the Wendell Huston Company, Des Moines, Iowa. 1,306 pp., including indexes. $10.00. Annual loose-leaf supplement, $5.00.

Social workers, sociologists and others interested in welfare work in the United States will welcome this handy compilation. The volume attempts to bring together the statutes of all the states dealing with poor relief, public charities, juvenile delinquency, mothers' and widows' allowances and old age pension systems. A topical guide precedes the laws of each state. The whole is arranged in a loose-leaf binder to permit the insertion of annual supplements.

Cost of Government in the United States, 1927-1928

This is a publication of the National Industrial Conference Board, Inc., constituting one of its series of Studies in Taxation and Public Finance. It presents a picture of the growth, present extent and the indicated trend of government expenditures, federal, state and local, by means of tables, charts, and running comments. Its purpose as given is to awaken the public at large to a full and complete realization of what government is costing, in the hope of "infusing into government the spirit of business administration." Local finances suffer in the statistical comparisons on account of the mounting requirements of local governmental services, which are not counterbalanced by a reduction in fixed charges such as occurs with the Federal government in relation to the war-time debts. The book has separate chapters on expenditures, indebtedness, tax collections, and sources of tax revenue, and the importance of highway finance is recognized in a separate chapter also. 140 pp., cloth covers. $3. (Apply to the Board, 247 Park Ave., New York.)

State Income Taxes, National Industrial Conference Board, New York

Two vols., 121, 214 pp. $2.00 and $2.50.

These two volumes offer a comprehensive, yet concise, survey of the use of the income tax by the twenty American states which include it in their systems. The first volume is historical. It has a chapter for each state, discussing the motives leading to the adoption of the income tax and the policies characterizing its application. The succeeding volume analyzes the problems of income tax administration and the issues involved in its incorporation in our state tax systems. The authors regard this tax as already having a secure place in American tax practice. They expect it to supplant the personal property tax and supplement taxes on real property. They point out that not only does it reach "ability to pay," which no other tax can reach, but it alone of all forms of taxation permits graduation in accordance with this ability. The authors unhesitatingly indorse centralized administration. They point out the great difficulty of permitting the locality to share directly in the proceeds, but suggest other possible indices of allocation. It is enough to say that this work is thoroughly worthy of the organization issuing it.

Housing in Pittsburgh

The first annual report of the Pittsburgh Housing Association covers the period from October 1, 1928, to December 31, 1929, with supplementary material to May 1, 1930. It records tremendous accomplishments in inspections made, houses listed, violations listed, violations found abated on reinspection, and proportion of violations abated (46.67 per cent). 24 pp., illustrated. (Apply to the Association, 401 Granite Bldg., Pittsburgh, Pa.)

Other Reports Received

Atlanta, Ga.—Annual Report, City Comptroller. 1929. 92 pp.

Buffalo, N. Y.—Annual Report, Department of Police. 1929. 36 pp.

Cleveland, Ohio.—Annual Report, Board of Park Commissioners. 1929. 66 pp.

Fort Wayne, Ind.—Annual "Activity Review," Chamber of Commerce. To June, 1930. 80 pp.

Fort Wayne, Ind.—Annual Report, Board of Park Commissioners. 1929. 36 pp.

Kenosha, Wis.—Annual Municipal Report. 1929. 102 pp.

Lynchburg, Va.—Annual Municipal Report. 1929. 130 pp.

Milwaukee, Wis.—Annual Municipal Report. 1929. 108 pp.

Moose Jaw, Sask.—Annual Financial Statement. 1929. 64 pp.

New York City.—Report, Fifth Avenue Association, January, 1929, to June, 1930. 36 pp.

Newark, N. J.—Annual Report of the Auditor of Accounts, 1929. 225 pp.

Ogden, Utah.—Monthly Financial Statement, April, 1930. 18 pp.

Pittsburgh, Pa.—Annual Review by J. S. Slippy. 1930. 46 pp.

Regina, Sask.—Proceedings, Annual Convention, Saskatchewan Association of Rural Municipalities. March, 1930. 62 pp.

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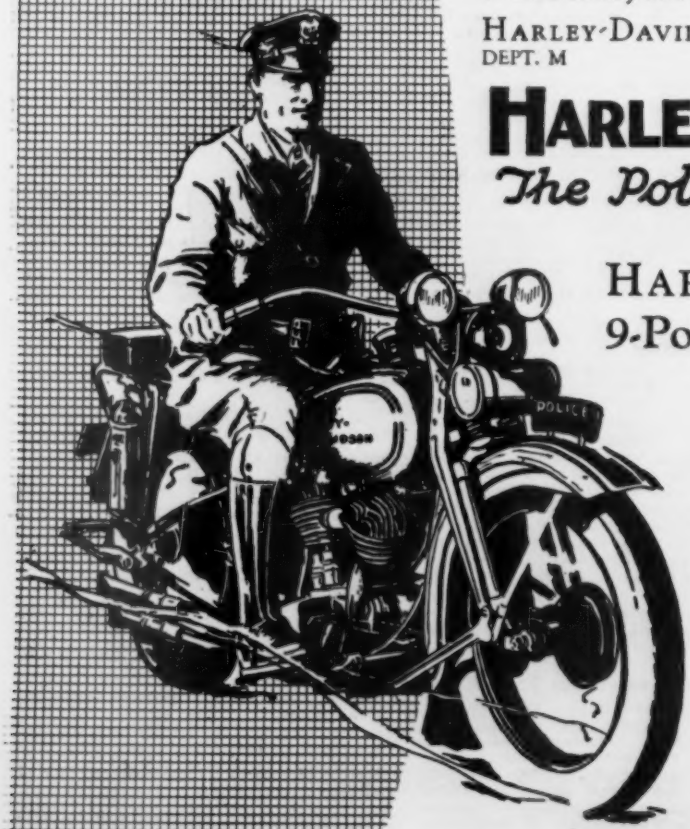

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CONVENTIONS—WHEN AND WHERE

Figures in parentheses following the name of the convention city indicate the estimated attendance, other than local

AUGUST 3-16.—EVANSTON, ILL. (300)
National Institute for Commercial and Trade Organization Executives. Annual session. Secretary John N. Van der Vries, 607 First National Bank Building, Chicago, Ill.

AUGUST 4.—DULUTH, MINN. (400)
International Association of Chiefs of Police. Annual convention. Secretary, George Black, Chief of Police, Wilmington, Del.

AUGUST 12-16.—DENVER, COLO. (300)
International Association of Municipal Electricians. Convention. Secretary, H. N. Lang, P. O. Box 1864, Orlando, Fla.

AUGUST 19-21.—YORK, PA. (200)
League of Cities of the Third Class in Pennsylvania. Convention. Secretary, R. Ross Seaman, City Clerk, Harrisburg, Pa.

AUGUST 19-21.—BURLINGTON, IOWA. (300)
League of Iowa Municipalities. Annual meeting. Secretary-Treasurer, Frank G. Pierce, Marshalltown, Iowa.

AUGUST 19-21.—TRURO, NOVA SCOTIA. (100)
Union of Nova Scotia Municipalities. Annual convention. Secretary, Arthur Roberts, Bridgewater, N. S.

AUGUST 21-22.—SUPERIOR, WIS. (100)
American Water Works Association—Wisconsin Section. Annual convention. Secretary, L. A. Smith, Supt. of Water-Works, Madison, Wis.

AUGUST 26-27.—WOODSTOCK, NEW BRUNSWICK.
Union of New Brunswick Municipalities. Annual convention. Honorary Secretary-Treasurer, John B. McNair, Fredericton, N. B.

AUGUST 27-29.—CLEVELAND, OHIO. (100)
National Shade Tree Conference. Sixth annual conference. Secretary-Treasurer, Dr. Rush P. Marshall, Yale University, New Haven, Conn.

AUGUST 27-29.—TORONTO, ONT. (180)
Ontario Municipal Association. Convention. Sec.-Treas., H. L. Brittain, 21 King St. East, Toronto.

SEPTEMBER 3-5.—ALTOONA, PA.
Pennsylvania State Association of County Commissioners. Annual convention. Secretary, J. C. Dougherty, Harrisburg, Pa.

SEPTEMBER 8-11.—TORONTO, ONT. (400)
Association of American Cemetery Superintendents. Convention. Secretary, William B. Jones, Supt. of Highwood Cemetery, Pittsburgh, Pa.

SEPTEMBER 8-10.—HAMILTON, ONT. (100)
Union of Canadian Municipalities. Annual convention. Secretary, Samuel Baker, London, Ont.

SEPTEMBER 9-12.—WINNIPEG, MAN. (1,100)
International Association of Fire Chiefs. Annual convention. Secretary, James J. Mulcahey, Fire Chief, Yonkers, N. Y.

SEPTEMBER 13.—SYRACUSE, N. Y.
New York State Sewage Works Association. Fall meeting. Secretary, A. S. Bedell, State Department of Health, Albany, N. Y.

SEPTEMBER 15-18.—AMARILLO, TEXAS. (300)
Southwest Water Works Association. Annual convention. Secretary, Lewis A. Quigley, Fort Worth, Texas.

SEPTEMBER 16-18.—QUEBEC, QUE. (300)
Canadian Good Roads Association. Annual convention. Secretary-Treasurer, George A. McNamee, New Birks Building, Montreal, Que.

SEPTEMBER 16-18.—BAY CITY, MICH.
Michigan Municipal League. Annual convention. Director, Harold D. Smith, University of Michigan, Ann Arbor, Mich.

SEPTEMBER 22-25.—ATLANTIC CITY, N. J.
New England Water Works Association. Annual convention. Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 22-24.—BEAUMONT, TEXAS. (350)
Chiefs of Police and City Marshals Association of Texas. Annual convention. Secretary, George A. Smith, P. O. Box 299, Dallas, Texas.

SEPTEMBER 23-26.—MILWAUKEE, WIS. (150)
American Association of Port Authorities. Annual convention. Secretary, T. S. McChesney, Room 200, New Orleans Court Bldg., New Orleans, La.

SEPTEMBER 24-27.—SAN FRANCISCO, CALIF. (150)
International City Managers' Association. Annual convention. Executive Secretary, Clarence E. Ridley, 923 East 60th Street, Chicago, Ill.

SEPTEMBER 25-26.—PATERSON, N. J. (500)
New Jersey State League of Municipalities. Convention. Executive Secretary, Sedley H. Phinney, 34 West State Street, Trenton, N. J.

SEPTEMBER 29-OCTOBER 2.—ST. LOUIS, MO. (275)
American Institute of Park Executives and American Park Society. Annual convention. Executive Secretary, William H. Walker, 1310 Tecumseh Avenue, South Bend, Ind.

SEPTEMBER 29-OCTOBER 3.—PITTSBURGH, PA. (5,000)
National Safety Council. Annual Safety Congress. Managing Director, W. H. Cameron, 20 North Wacker Drive, Chicago, Ill.

SEPTEMBER 29-OCTOBER 2.—KELOWNA, BRITISH COLUMBIA.
Union of British Columbia Municipalities. Annual convention. Secretary, A. W. Gray, P. O. Box 580, New Westminster, B. C.

OCTOBER 1-3.—ST. LOUIS, MO. (450)
American Society of Civil Engineers. Fall meeting. Secretary, George T. Seabury, 33 West 39th Street, New York.

OCTOBER 6-10—LONG BEACH, CALIF. (1,500)
California Conference on City Planning. Joint meeting with the League of California Municipalities. Secretary, C. J. S. Williamson, Chamber of Commerce Building, Los Angeles, Calif.

OCTOBER 6-10.—LONG BEACH, CALIF. (1,500)
League of California Municipalities. Joint meeting with California Conference on City Planning. Executive Secretary, William J. Locke, 1095 Market Street, San Francisco, Calif.

OCTOBER 6-7.—BISMARK, N. DAK. (100)
League of North Dakota Municipalities. Annual meeting. Executive Secretary, Myron H. Atkinson, Bismark, N. Dak.

OCTOBER 6-11.—ATLANTIC CITY, N. J. (600)
National Recreation Association. Annual convention. Secretary, Howard S. Braucher, 315 Fourth Avenue, New York.

OCTOBER 6-11.—WASHINGTON, D. C. (2,500)
Permanent International Association of Road Congresses. Sixth International Road Congress. Thomas H. MacDonald, Secretary General of the American Organizing Committee, 1723 N Street, N. W., Washington, D. C.

OCTOBER 7-10.—WASHINGTON, D. C. (2,500)
American Road Builders' Association. International Exposition of Highway Equipment and Material. Secretary-Director, Charles M. Upham, National Press Building, Washington, D. C.

OCTOBER 7-10.—MADISON, WIS. (1,500)
American Country Life Association. Conference. Executive Secretary, Benson Y. Landis, 105 East 22nd Street, New York.

OCTOBER 7-10.—WILMINGTON, N. C. (450)
Atlantic Deeper Waterways Association. Annual convention. Address: A. D. W. Association, Widener Building, Philadelphia, Pa.

OCTOBER 7-10.—RICHMOND, VA. (500)
Illuminating Engineering Society. Annual convention. General Secretary, A. B. Oday, 29 West 39th Street, New York.

OCTOBER 8-9.—SWAMPSCOTT, MASS. (200)
Massachusetts Police Association. Annual convention. Secretary, John H. Shaughnessey, West Newton, Mass.

OCTOBER 8-9.—MILWAUKEE, WIS. (200)
Wisconsin Chiefs of Police Association. Annual meeting. Secretary, R. H. McCarty, Police Department, Kaukauna, Wis.

OCTOBER 9-11.—LOUISVILLE, KY. (200)
International Association of Street Sanitation Officials. Annual convention. Secretary, A. M. Anderson, 100 North LaSalle Street, Chicago, Ill.

OCTOBER 10-16.—LOUISVILLE, KY. (500)
American Prison Association. Annual congress. General Secretary, E. R. Cass, 135 East 15th Street, New York.

OCTOBER 13-17.—RICHMOND, VA. (200)
American Society for Municipal Improvements. Annual convention. Secretary, C. W. S. Sammelman, 4359 Lindell Boulevard, St. Louis, Mo.

OCTOBER 16-17.—SPRINGFIELD, ILL. (300)
Illinois Municipal League. Annual convention. Secretary, A. D. McLarty, Urbana, Ill.

OCTOBER 19-22.—TULSA, OKLA. (325)
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, William J. Russell, Chamber of Commerce of the Borough of Queens, Long Island City, N. Y.

OCTOBER 20-22.—HAYS, KANS. (300)
League of Kansas Municipalities. Annual convention. Executive Secretary, John G. Stutz, Lawrence, Kans.

OCTOBER 20-24.—KANSAS CITY, MO. (600)
National Tax Association. Annual meeting. Secretary, W. G. Query, Chairman, South Carolina Tax Commission, Columbia, S. C.

OCTOBER 21-23.—LITTLE ROCK, ARK. (55)
National Council of School House Construction. Secretary-Treasurer, William C. Bruce, American School Board Journal, Milwaukee, Wis.

OCTOBER 22-24.—CLEVELAND, OHIO. (200)
International Association of Dairy and Milk Inspectors. Meeting. Secretary-Treasurer, Dr. Paul B. Brooks, State Dept. of Health, Albany, N. Y.

OCTOBER 25-27.—FORT WORTH, TEXAS. (45)
Conference of State Sanitary Engineers. Annual meeting. Secretary-Treasurer, R. E. Tarbett, U. S. Public Health Service, Washington, D. C.

OCTOBER 27-31.—FORT WORTH, TEXAS. (800)
American Public Health Association. Annual meeting. Executive Secretary, 370 Seventh Avenue, New York.

OCTOBER 29-NOVEMBER 1.—PASADENA, CALIF. (400)
American Water Works Association—California Section. Annual convention. Secretary-Treasurer, L. L. Farrell, 2127 Adeline Street, Oakland, Calif.

OCTOBER 30-NOVEMBER 1.—CHICAGO, ILL. (100)
Civil Service Assembly of the United States and Canada. Annual meeting. Secretary, Fred Telford, 923 East 60th Street, Chicago, Ill.

NOVEMBER 6-7.—TORONTO, ONT.
Canadian Tax Conference of the Citizen's Research Institute of Canada. Director, Horace L. Brittain, 21 King Street East, Toronto, Ont.

NOVEMBER 10-12.—CLEVELAND, OHIO.
Governmental Research Association. Annual meeting. Secretary-Treasurer, Russell Forbes, 261 Broadway, New York.

NOVEMBER 10-12.—CLEVELAND, OHIO.
National Municipal League. Annual convention. Secretary, Russell Forbes, 261 Broadway, New York.

NOVEMBER 10-12.—CLEVELAND, OHIO. (100)
Ohio Municipal League. Meeting. Secretary-Treasurer, Professor Harvey Walker, Ohio State University, Columbus, Ohio.

NOVEMBER 10-12.—CLEVELAND, OHIO.
Ohio State Conference on City Planning. Annual meeting. Secretary, Gerald S. Gimre, City Hall, Youngstown, Ohio.

NOVEMBER 10-12.—CLEVELAND, OHIO.
Proportional Representation League. Annual meeting. Executive Secretary, George H. Hallett, Jr., 311 South Juniper Street, Philadelphia, Pa.

DECEMBER 1-5.—MEMPHIS, TENN. (850)
The Asphalt Institute. Ninth Annual Asphalt Paving Conference. Managing Director, J. E. Pennybacker, Crystal Building, 801 Second Avenue, New York.

DECEMBER 1-5.—MEMPHIS, TENN. (850)
Association of Asphalt Paving Technologists. Meeting in conjunction with Ninth Annual Asphalt Paving Conference of The Asphalt Institute. Secretary-Treasurer, C. A. Mullen, 950 Saint Antoine Street, Montreal, Que.

JANUARY.—ST. LOUIS, MO. Date not determined.
American Road Builders' Association. Annual meeting. Secretary-Director, Charles M. Upham, National Press Building, Washington, D. C.

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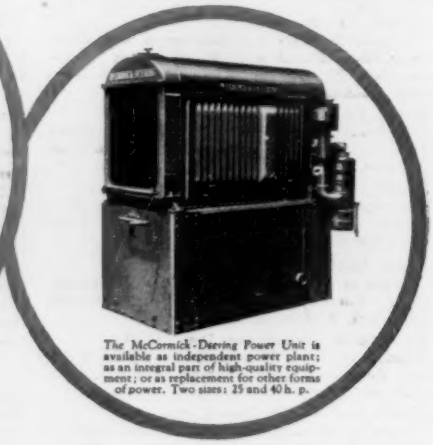

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Spreading gravel with the McCormick-Deering-operated road maintainer. Scores of types of road construction equipment are powered by McCormick-Deering.

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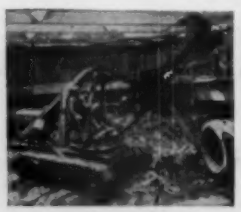
Rolling dirt over conduit pipe with a trench-roller unit, filling over 2600 feet of 4-ft. trench in a day.



McCormick-Deering-operated shovel digging the approaches to the Detroit-Windsor Tunnel.

Breaking paving with McCormick-Deering-operated air compressor in front of Royal-York Hotel, Toronto.

Showing a McCormick-Deering-powered locomotive, an economical installation rendering service out of all proportion to its size.

McCORMICK-DEERING
INDUSTRIAL POWER

NEWS AND ILLUSTRATIONS

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

CATERPILLAR SIXTY LEANING-WHEEL GRADER

A New Leaning-Wheel Grader

A new grader to team up with the Caterpillar Sixty grader, featuring a 42-inch lateral side shift of the blade that can cut a bank of 60 degrees slope, has been announced by the Caterpillar Tractor Co., San Leandro, Calif. This new Caterpillar Sixty leaning-wheel grader is the heaviest made by this company, weighing 11,300 pounds without the scarifier. It introduces a new centralized control system by which seven control wheels govern the nine important adjustments of blade pitch and position, wheel adjustment and steering.

Correct pitch of the blade at all times, whether cutting or drifting, is maintained by the exclusive 3-point control. The wide range and reach of the blade is made possible by a 42-inch lateral side shift, by three positions of the connecting link between the side shift and circle crossbar, by three blade position connections with the blade beams and by four positions at the extensible lifting links. The blade is thus enabled to make a high reach for bank cutting of 6 feet 6 inches and can cut a slope of 60 degrees.

The entire lifting mechanism is mounted on roller bearings—tapered roller bearings in the worm shaft, double row ball bearings on the lift shaft, and roller bearings for the compensating lift spring sheaves. A new construction is also introduced for the knuckle arms of the leaning wheels whereby a steel sleeve through the knuckle holds the heavy steel pin. The sleeve also acts as a spacer for the axle angles, allowing the nut on the pin to be drawn up tight to maintain rigidity. The knuckles pivot on the sleeve and not on the pin.

American Bitumuls Co. Moves

The American Bitumuls Co. has recently moved its home offices to 200 Bush Street, San Francisco, Calif.

Gamewell Takes Over Rockwood

The Gamewell Co., Newton Upper Falls, Mass., recently took over the Rockwood Sprinkler Co., of Worcester, Mass. At the same meeting V. C. Stanley, President of the Gamewell Co., was elected President of the Rockwell Sprinkler Co. of Massachusetts, with factory and home office at Worcester, and its associated companies, the Rockwood Sprinkler Co. of Illinois, Chicago, and the Worcester Fire Extinguisher Co., Ltd., of Montreal, Quebec.

This company has also announced that P. H. Sayward, formerly with the Servel Corporation, is now attached to the New York office of the Gamewell Co., at 3054

V. C. STANLEY, PRESIDENT AND GENERAL MANAGER, THE GAMEWELL CO.

Grand Central Terminal, and will probably be active in sales work in Virginia from now on.

New A. G. A. Airport Lighting Division

The American Gas Accumulator Co., Elizabeth, N. J., has announced the formation of an Airport Lighting Division, to act as the exclusive distributor of the airport and airway lighting equipment of the American Gas Accumulator Co., the B. B. T. Corporation of America, and the Sperry Gyroscope Co., Inc.

L. C. Simpson, formerly Manager of the Airport Equipment Sales Department of the Curtiss-Wright Flying Service, has been appointed Sales Manager.

According to AGA officials, this merger will materially advance the dioptric or Fresnel system of airport floodlighting.

Additions to Hartford's Fire-Fighting Equipment

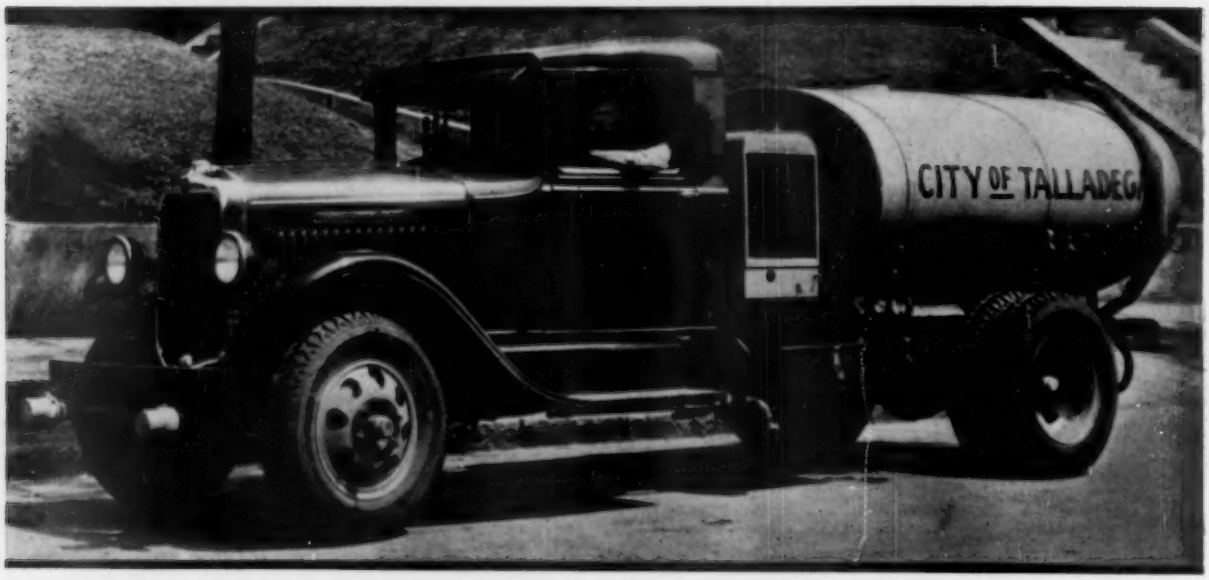
The three 1,000-gallon pumping-engines, made by the American LaFrance and Foamite Corporation, Elmira, N. Y., recently added to the fire-fighting equipment of Hartford, Conn., complete an order of four, the first of which was delivered several months ago. With all four pieces now in active service, Hartford has retired the last of its tractor-drawn "steamers."

During the Underwriters tests which were conducted on the banks of the Connecticut River, the three machines pumped through a single stream, using the largest nozzle in the possession of the Hartford Fire Department. Chief John C. Moran estimated that 2,300 gallons of water passed through the nozzle each minute. The contract required that the machines deliver 1,000 gallons of water per minute each at a pressure of 120 pounds, 500 gallons at 200 pounds pressure, and 350 gallons at 250 pounds pressure. As is usual in such tests, the machines were not pushed and were operated simply to meet the minimum requirements. Despite this fact, however, they delivered approximately 1,045 gallons per minute each in the capacity trials and about 515 and 370, respectively, in the two pressure tests.

The tests were witnessed by John C. Moran, Chief of the Hartford Fire Department; George W. Sanford, President of the Hartford Fire Board; James F. Dolin, John J. McNally and Horace B. Clark, Commissioners; Roco D. Pallotti, Alderman; Frank B. Haynes and George W. Wardinske, ex-Commissioners; J. F. Holden, Secretary of the Fire Board; and Frank B. Coggshall, Deputy Fire Chief.

TESTS OF NEW AMERICAN-LA FRANCE FIRE EQUIPMENT IN HARTFORD, CONN.

FLUSHES, SPRINKLES ALL *of* TALLADEGA'S STREETS *in* 6 *hours*



... Also Speedy Fire Unit!

WITH a separate motor, flusher and fire equipment mounted on the General Motors Truck Model T-44 chassis, this unit flushes all the paved streets of Talladega, Alabama, in four hours; sprinkles unpaved streets in two more.

The rest of the time, night and day, the 850 gallon tank is kept filled, ready for a fire call. When the call comes, the 6-cylinder engine takes the apparatus to the scene with the speed of a high-powered passenger car. There, the auxiliary pump gets into quick action. The unusual *maneuver-ability* of the truck itself is also a big advantage.

3-TON RANGE

$2195

Model T-44C . . . Straight Rating 15,000 lbs., total gross weight, including load . . . 4 chassis and 12 types . . . price, chassis only, f. o. b. Pontiac, Michigan

This installation typifies the manner in which General Motors Trucks—combining *usable* speed and power with iron-muscled ruggedness—are steadily replacing costly, old-type vehicles in many types of municipal service.

Unusual advantages—in volume manufacturing and great purchasing power—put modern truck equipment within the reach of the smallest of cities. Low first cost is combined with equally low operation and maintenance cost through *years* of service.

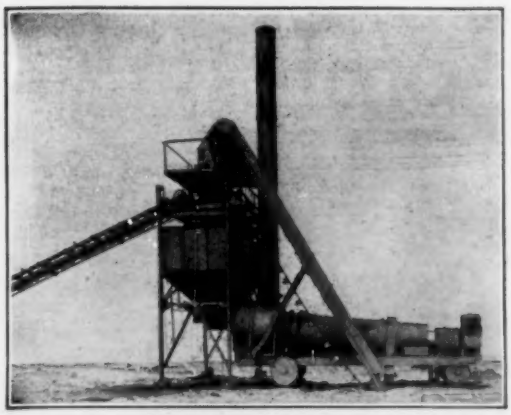
This great, complete line of trucks is worth investigating—now!

GENERAL MOTORS TRUCKS

TIME PAYMENTS, on any General Motors Truck, are financed at lowest rates available anywhere, through our own Yellow Manufacturing Acceptance Corp. GENERAL MOTORS TRUCK CO., Pontiac, Michigan (*Subsidiary of* Yellow Truck & Coach Mfg. Company) GENERAL MOTORS TRUCKS . . . YELLOW CABS . . . COACHES. *Factory Branches, Distributors, Dealers—in 1500 principal cities and towns.*

A MODERN TRUCK FOR EVERY PURSE AND PURPOSE

Why not remember to mention THE AMERICAN CITY?



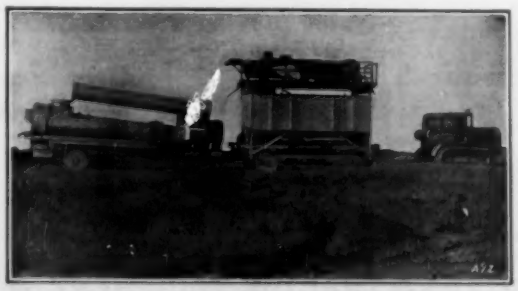
A COMPLETE PLANT FOR PRODUCING BITUMINOUS ROAD-SURFACING MATERIAL

Pre-Mixed Material for Oil Road Construction

A complete plant known as the Cedar Rapids premix plant, for producing a properly mixed low-cost bituminous road-surfacing material, has been developed by the Iowa Manufacturing Co., Cedar Rapids, Iowa. It is stated that with this plant oiled gravel can be produced at one-fourth to one-sixth of the mileage cost of high-type hard-surfaced material.

The Cedar Rapids pre-mix plant consists of two units, the drier unit for drying the raw material and heating both gravel and road oil to the specified temperature, and the bin and pugmill unit for storing raw gravel, mixing dried gravel and heated oil, and finally storing the pre-mixed material. The drier unit consists of drier drum, oil burner, road oil pump power-plant and folding stack, all mounted on a heavy steel truck for ready portability.

Connected with the drier unit by a bucket elevator driven from the pugmill is the bin and pugmill unit. This unit consists of the pugmill, aggregate and road oil batchers and two compartment bins, one compartment for untreated material and the other for the finished pre-mix. Each compartment is of 17 cubic yards capacity. The entire plant can be knocked down in one working day and set up in another. A tank car heater, a 1,000-gallon truck tank for carrying oil to the plant, and a special unit for pumping the road oil from the tank car to the truck tank are necessary accessories provided to be used in connection with the regular equipment of the Cedar Rapids pre-mix plant.



THE PLANT DISMANTLED AND READY FOR TRANSPORTATION

Correcting an Omission

Owing to the omission of the side signal on Monroe Street in the diagram on page 173 of the July issue of THE AMERICAN CITY, an erroneous impression was conveyed of the traffic control installation at Bellevue, Ohio. To correct this, we are reprinting the description of the installation with a new illustration showing the side signal.

U. S. Highway No. 20, passing through Bellevue, Ohio, on Main Street, produces a very heavy through traffic which must be moved continuously in both directions with minimum interruption. As shown by the accompanying diagram, this is a difficult problem because of the difference in the length of the blocks. Traveling from west to east, the first block from Main and Kilbourne Streets to Main and Southwest Streets is 160 feet long, while the next block from Main and Southwest Streets to Main and Sandusky Streets is 390 feet in length. To further complicate the problem, Main and Southwest Streets are also joined by Monroe Street at an angle of approximately 45 degrees, producing a five-point intersection which requires three-period control, which of course, would operate on the same cycle as used for the two-period control at all other intersections.

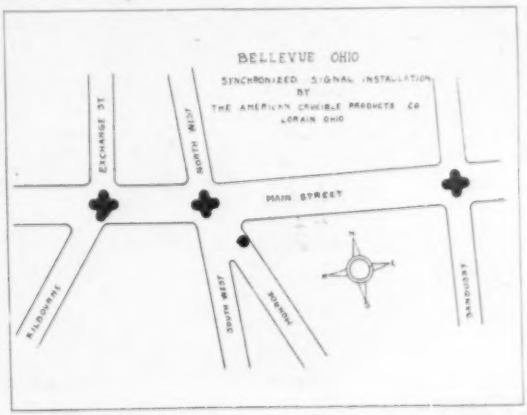
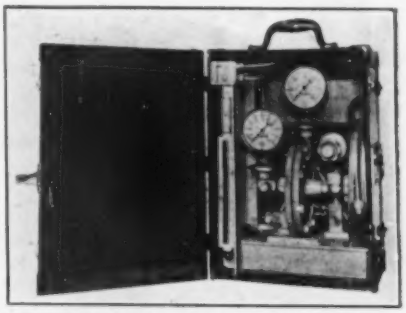


DIAGRAM OF THE MASTER SIGNAL AND CONTROL SYSTEM INSTALLED IN BELLEVUE, OHIO

After careful study, G. A. Williams, Director of Safety, Bellevue, secured a satisfactory solution of the problem through the use of master signals and controls made by the American Crucible Products Co., Lorain, Ohio.

Solvay Sales Corp. Moves

The Solvay Sales Corp., formerly at 40 Rector Street, New York, moved on August 1 to 61 Broadway, New York.



THE PARADON PORTABLE AMMONIATOR

A New Portable Ammoniator

A new portable ammoniator, consisting of a standard Paradon Type ADB unit, housed in a fiber carrying case and resembling a piece of hand luggage, has been developed by the Paradon Manufacturing Co., Arlington, N. J.

This apparatus is adapted to continuous regular use as well as emergency use. In design, it is essentially like the Paradon chlorinator, except that the parts are made of material that will withstand the corrosive effects of ammonia. A shut-off valve is provided to keep moisture and foreign matter out of the apparatus during periods of non-use. No water-supply is necessary for its operation, the ammonia gas being applied directly.

It can be furnished for any range of capacity from 1 pound of ammonia per 24 hours to 300 pounds of ammonia per 24 hours. Equipment can also be supplied that would decrease the minimum capacity to 0.05-pound of ammonia per 24 hours.

The use of ammonia in connection with chlorination of water is spreading rapidly. Chlorine, when added to water already treated with ammonia, forms a chloramine compound which is several times as effective as chlorine alone as a sterilizing agent.

New Refuse Collection Systems

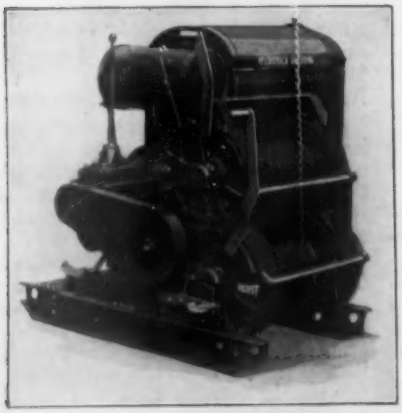
On July 1, the city of Bridgeport, Conn., inaugurated a new sanitary collection system using nine Colecto 10-cubic-yard bodies, made by B. Nicoll & Co., 292 Badison Avenue, New York, mounted on Mack AB chassis.

With this equipment it was found possible to reduce to 30 the number of men used to handle all collection of garbage, ashes and rubbish from the 42 collectors previously used. One Colecto body has been estimated to do the work of six of the wagons formerly used, and the city was able to dispense with approximately 40 horses, even though the collectors now have to go to the back of the houses to pick up the material which was formerly handled from the curb.

Sanitary District No. 1 of Hempstead, Long Island, also began the use of Colecto trucks at about the same time, using six 5-cubic-yard bodies on Ford chassis.

Built for hoisting profits

TRACKSON
TRACTOR EQUIPMENT



TRACKSON HOIST insures bigger profits on every hoisting operation of general contracting, excavating, well pulling, log skidding, land clearing, etc. Among its many exclusive features is a level wind which speeds up the work and saves wear and tear on the cable. Its main frame channels are anchored to the rear housing to relieve the tractor of strain. . . . Oversized drum shafts provide greater capacity. . . . Hand lever controls and improved screw-type clutches make every operation faster and easier. . . . All-steel construction insures lower upkeep and longer life. Trackson Hoist is sold either as a single or double drum unit and is readily converted into either. Send for full details.

Trackson Company
FULL-CRAWLERS & TRACTOR EQUIPMENT
518 CLINTON ST. MILWAUKEE, WIS.

During August we hope you will remember to mention THE AMERICAN CITY

Next Asphalt Paving Conference to Be at Memphis

At a recent meeting of the Board of Directors of the Asphalt Institute, Memphis, Tenn., was selected as the meeting place for the Ninth Annual Asphalt Paving Conference on December 1 to 5, inclusive. The Association of Asphalt Paving Technologists will, as usual, meet in conjunction with the Conference.

O. I. Kruger, City Commissioner, and W. B. Fowler, City Engineer, of Memphis, are assisting in organizing the committees which will have charge of the local arrangements. An elaborate entertainment program is being planned.

A Tank Truck for Cleaning Cesspools and Septic Tanks

There are many sections, even of our larger cities, where sewer systems have not yet been installed and it is necessary for individual property owners to install septic tanks or cesspools to care for the sanitary drainage. Unless the soil is very sandy and the tank becomes virtually a leaching cesspool, it is necessary for these tanks to be pumped out periodically.

The Interboro Hoist & Body Corporation, Van Dam Street, Long Island City, N. Y., has developed a motor unit which is particularly well adapted for this work.

A Columbian steel tank of 700 gallons capacity supported at three points and of oval shape is mounted on a suitable motor truck. The tank is equipped with screw manholes, a 6-inch filling plug and vent, pipe-rail can racks and an 8-inch watertight chief hole discharge with an eccentric locking device. Mounted above the 700-gallon tank is a 150-gallon water-tank with 3-inch inlet, 3-inch threaded outlet and ¾-inch faucet. The equipment includes all the necessary piping and fittings as well as a hose tube for 3-inch hose and couplings with a box at the rear of the tube. There is a 6-inch strainer bushed down and tapped free for suction hose, with the necessary fittings and a pumping unit equipped with an automatic primer and suction cap, a 3-inch suction hose with two sets of couplings, a 3-inch soft hose for connecting to the tank, and a ¾-inch common flush hose. The pump is operated from a power take-off from the engine of the truck.

MURDOCK BUBBLE FONT AT BATHING POOL, INWOOD PARK, CINCINNATI, OHIO

Outdoor Bubble Fonts

Outdoor bubble fonts of bronze, brass and iron, such as those made by the Murdock Manufacturing & Supply Co., 426-430 Plum Street, Cincinnati, Ohio, have the ability to withstand exposure and abuse and will not craze, chip or crack. The Murdock font is particularly adapted for railway platforms and yards, public streets, parks, playgrounds, schools, school yards, golf courses and swimming pools. It will not freeze, and all working parts can be easily and quickly removed without digging up or disturbing the fixture. All that is necessary is to take out three bolts and take off the pedal.

The font is operated by a foot pedal which insures a free flow of water even at the foot-touch of a child. No matter how hard the downward thrust on the pedal, the flow of water is regulated and there is no strain on the valve or inner works.

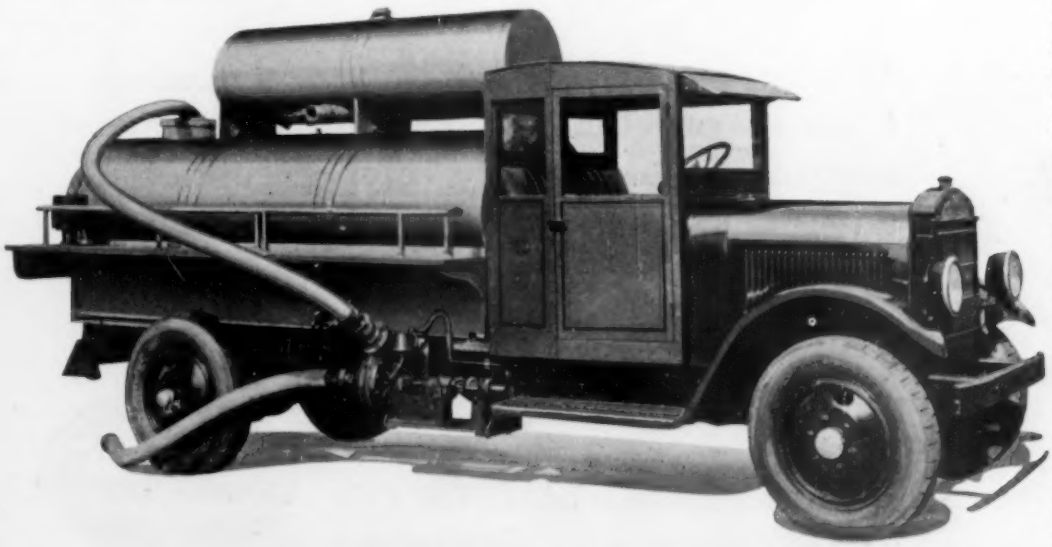
The bronze, chromium bubbler head is non-squirting and easily adjusted to water pressure. An angle stream is regularly supplied, but a bubbler of the vertical type may be had where desired. The font drains itself immediately each time it is used, so that water cannot remain in the supply pipe to freeze in winter or to become stagnant in summer.

An Exceptional Presentation of Ornamental Lighting Equipment

The characteristics and advantages of the Elreco line of steel street-lighting standards, combination poles, brackets, traffic-signal supports, etc., as well as some valuable general information on lighting practice, are very effectively set forth in a new and unusually beautiful and comprehensive catalog of The Electric Railway Equipment Co., of Cincinnati, Ohio. It is a book of 239 pages, 9 by 12 inches, of artistic typography, well illustrated, and with attractive light-blue background or other ornamentation on every page.

In the foreword are concisely presented the various kinds of service that the company is prepared to render, together with several plans for the financing of street-lighting projects, and a useful table giving suggestions as to lighting intensities, spacings and mounting heights for various classifications of streets.

The equipment that the company produces is described in five sections of the catalog. The first of these covers standards devoted to street lighting alone, including formed steel standards in the shape of graceful fluted and octagonal columns, and slender tubular steel standards; ornamental cast iron bases are also described here. The second section has to do with combination street-railway and lighting poles, the third with ornamental street-lighting brackets for attachment to poles for other use. Separate sections are devoted to standards for traffic signals and to equipment for use at gasoline filling stations, including standards for general lighting and floodlighting, and for display signs. The book makes a valuable addition to a city's catalog library.



THE INTERBORO TANK TRUCK WITH COLUMBIAN BODY FOR CLEANING CESSPOOLS

DOWN IN THE BAD LANDS OR UP IN THE MOUNTAINS!

DRAGGING a heavy load through the mud and ooze of a swampy river bed or laying a road high up on a mountain side—it makes little difference where the work is or what type it is when a Cletrac is on the job. Sure power—sure traction—and sure, all weather performance—fit Cletracs for the hard work and tough going of any locality.

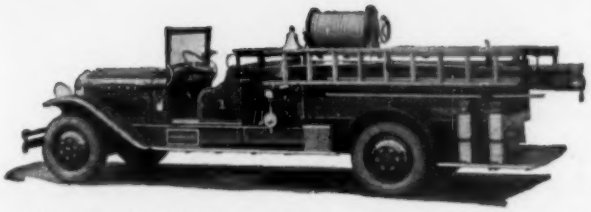
Wherever sure-footed power is needed, Cletracs provide the ideal units. Strong, rugged, capable, they offer exceptional advantages and economies. Built in a line of five units ranging from 20 to 100 h. p.

See your Cletrac distributor for a demonstration or write direct for complete literature.

THE CLEVELAND TRACTOR CO.
19326 Euclid Avenue Cleveland, Ohio

Cletrac Crawler Tractors

Mention THE AMERICAN CITY—it helps.



AHRENS-FOX MODEL V JUNIOR LINE PUMPING-ENGINE

A New Line of Fire Apparatus for Smaller Communities

To provide dependable, sturdy and efficient fire-fighting equipment for the smaller cities and communities, the Ahrens-Fox Fire Engine Co., Cincinnati, Ohio, has developed the Junior Line.

This apparatus is built with a very low center of gravity, the top of the windshield being but 6 feet 3 inches from the ground. The pumping unit has a compartment entirely its own, which does not encroach on the seat space nor on the hose body. The body is welded into one piece with no riveted seams, and the unit is powered with a 6-cylinder motor developing 94 brake horsepower. It has a four-speed transmission, the fourth being over-drive so that on long runs it is possible to get a maximum speed with a minimum of motor revolution.

Over-size pneumatic tires are used throughout, as well as hydraulic four-wheel brakes and a booster brake system. The windshield is standard on all Junior pumping engines and built in as a part of the equipment.

In the preliminary and official pumping tests it has been demonstrated that the rated capacity is secured at 33 1/3 per cent under the horsepower peak as compared to a 20 per cent requirement of the National Board of Fire Underwriters.

In accordance with the recommendation of F. O. Eichelberger, City Manager, Dayton, Ohio, the City Commission has placed an order with the Ahrens-Fox Fire Engine Co. for additional fire apparatus to cost $64,750. The new apparatus will include three piston pumpers, one service ladder truck and one 85-foot aerial ladder truck.

On June, 24, Henry R. Early, who has been connected with the Ahrens-Fox Fire Engine Co. for a number of years and recently was Chicago representative for the company, passed away. He was buried at Georgetown, Ky., his old home.

A Trailer Attachment for Marking Traffic Lines

With the introduction of a new trailer attachment by Littleford Bros., Cincinnati, Ohio, it is no longer necessary for the operator of a Littleford Traf-O-Mark traffic line marker to push the machine along the center of the road or to mark a guide line to follow. This device consists of two distinct units attached to the car, the marking unit and the guiding unit.

In marking a 20-foot concrete road, for instance, which is to be center-marked on all curves and at crests of hills, the marking unit is first attached to the running-board of the car. The operator then places the car so that the marking roller on the Traf-O-Mark is in the center of the road, and he is ready to attach the guiding unit. The long bar, with the chain dangling from it, is adjusted to extend from the left of the car to the edge of the road. The operator then takes his place in the driver's seat and, by means of the arm extending from the marking machine, lowers the marking roller to the road surface.

He starts the car and guides it by watching the chain follow the edge of the road as it dangles from the guide arm. It is not necessary to watch the Traf-O-Mark. When it starts along the center of the road, it automatically feeds itself and requires no attention other than to see that the paint reservoir is kept full.

When a curve or the crest of a hill is completed, all that is necessary to proceed without making a mark is to raise the marking roller by means of the arm extending from the machine. The guiding arm can be thrown back over the right front fender.

When a marking job is completed, both units can be removed and placed in the car in three or four minutes. It is not necessary, however, to remove the guide arm. When thrown back over the right front fender, it is completely out of the way and does not interfere with fast driving of the car.

Ives Appointed General Manager of Armco Association

Stuart R. Ives, Vice-President and General Manager of the Lyle Culvert & Pipe Co., Minneapolis, Minn., has been appointed General Manager of the Armco Culvert Manufacturers Association, with headquarters at Middletown, Ohio. Previous to his joining the staff of the Lyle Co., he was connected with the American Rolling Mill Co. for 13 years, of which 10 years were spent in the Culvert and Flume Department and 7 years as Manager of that Department.

This appointment involves no change in the aims or policies of the Armco Culvert Manufacturers Association.

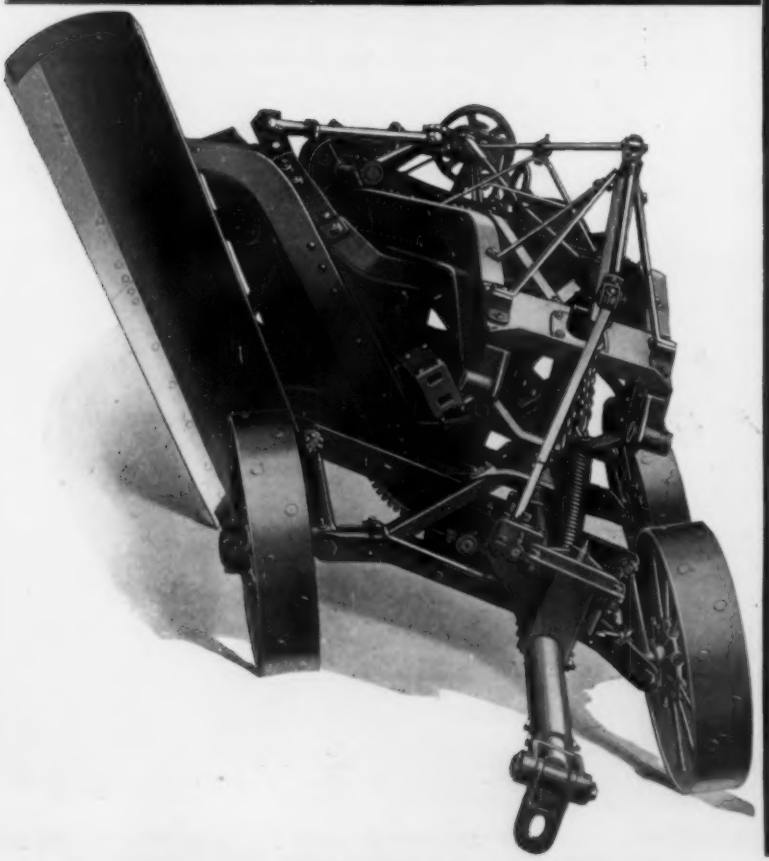
THE LITTLEFORD TRAILER ATTACHMENT FOR THE TRAF-O-MARK

A LONGEVITY MAP OF CAST IRON PIPE IN AMERICAN WATER-WORKS; PREPARED BY THE CAST IRON PIPE RESEARCH ASSOCIATION, CHICAGO, ILL.

Announcing the

"CATERPILLAR" SIXTY *Leaning Wheel* GRADER

Meeting Needs of Modern Roads



Wider grow the roads, deeper the ditches, better sloped the banks — Wider reaches the "Caterpillar" blade, deeper does it cut in the ditches, higher does it reach into the bank—

With these advantages comes the "Caterpillar" Sixty Leaning Wheel Grader.

Leaning Wheels.
3-Point Control to hold correct blade pitch advantage.
Ball and Roller Bearings on entire lift mechanism.
Bank Cutting Blade which cuts a 60 degree slope with a high reach of six feet six inches.
Compensating Spring Lift so mounted as to equalize tension on both ends of blade and exert uniform lifting force at any elevation of blade.
All Housed Gears Machine Cut.
Extensible Lift Links for greater reach.
Centralized Adjustment Controls.
60½-Inch One-Piece Structural Steel Circle.
Bronze Lift Gears, adjustable to six points of wear, running against machine-cut steel worm mounted on roller bearings.
One-Piece Carbon Steel Blade Beams riveted half way 'round the circle.
Four Vise-Like Screw Clamps that hold circle in their grip.
Nine-Inch Ship Channel Frame, weighing 28.6 pounds to the foot, reinforced.
42-Inch Lateral Side Shift.
Axle Spindles Drop Forged, heat-treated, chrome-nickel steel.
Tapered Roller Bearings in all wheels.
Tapered Cork Seals and Metal Guards to exclude dust from wheels.
Steel Wheels with Cast-In-Hub Spokes countersunk through tire.
Draft Direct to Blade . . . no draft applied to blade through frame.

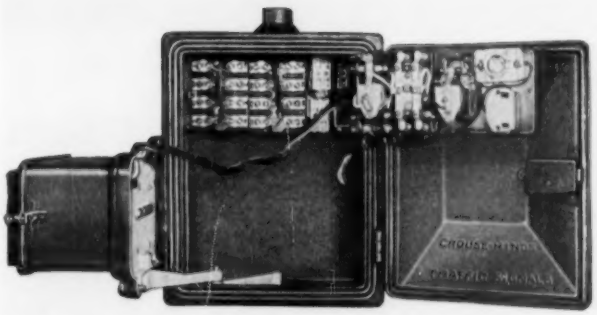
Price
F. O. B. Minneapolis, Minnesota $1900

Caterpillar Tractor Co.

PEORIA, ILL. *and* SAN LEANDRO, CALIF., U.S.A.
Track-type Tractors : Combines : Road Machinery
(There is a "Caterpillar" Dealer Near You)

CATERPILLAR
REG. U.S. PAT. OFF.
TRACTOR

During August we hope you will remember to mention THE AMERICAN CITY



TYPE DF TRAFFLEX SECONDARY, WITH DOORS OPEN AND TIMER SWUNG TO ONE SIDE, SHOWING ACCESSIBILITY FOR WIRING

The Progressive Control of Traffic

Traffic control is essentially a problem of keeping traffic moving continuously by arranging it in an orderly procession. In this way, all unnecessary stops can be eliminated and considerable time saved in passing through the congested area.

The Crouse-Hinds Trafflex control system, developed by the Crouse-Hinds Co., Syracuse, N. Y., is designed to give a flexible-progressive movement of traffic in which the operation of the signal at each intersection is determined by the traffic requirement of that particular intersection. It further provides a definite time relationship between adjacent timers to permit a smooth, uninterrupted flow of traffic in all directions at varying speeds. The speed at which traffic may move safely is determined by the physical condition of the streets, block lengths, condition of the paving, density of traffic, etc. With this system the speed of traffic may be varied instantly at any time to take care of these varying conditions.

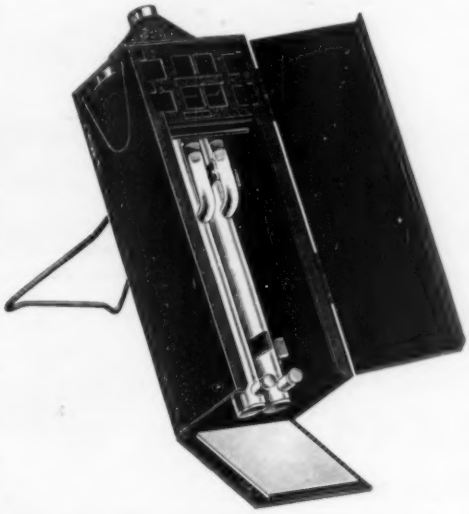
The Trafflex control system consists of a master timer located at control headquarters or at any convenient point within or near the controlled area, and a secondary timer at each of the controlled intersections. The master timer, which controls the speed at which traffic flows, acts upon all secondary timers, slowing them down or speeding them up, as may be required, keeps the secondary timers in their proper time relationship with respect to each other, and, in general, completely supervises the operation of all the secondaries at all times. The secondary timers respond instantly to any change in the speed control dial, graduated directly in seconds, with another scale for speed in miles per hour.

The system is simple to install, easy to maintain, and inexpensive to operate, and may be readily extended as traffic conditions warrant.

A New Comparator for the Analysis of Water, Sewage and Industrial Wastes

Colorimetric tests are frequently hindered by the inconvenience of preparing and rechecking the liquid comparison standards, all of which fade more or less in the course of time. This waste of time and expense have been largely overcome by the introduction of the new Hellige comparators with permanent color glass standards, distributed by Hellige-Klett, Inc., 179 East 87th Street, New York.

This apparatus consists of a metal housing, color disc with standards for the individual test, and Nessler tubes with plane and parallel bottom discs which give uniform and plane color fields and increased accuracy of readings. A prism arrangement brings the color fields into juxtaposition and facilitates the color comparison. Working with these comparators is very simple and tests can be made without any special training. The color disc is simply revolved until a standard matches the test solution, and the result is read directly from a number appearing through an opening in the front of the apparatus.



HELLIGE WATER TEST COMPARATOR WITH PERMANENT COLOR GLASS STANDARDS

Color discs with permanent color glass standards are available for all colorimetric methods by the American Public Health Association and the American Water Works Association and, in addition, discs may be secured for the same apparatus for all popular indicators for hydrogen-ion control and many other tests.

A lower-priced Hellige comparator is the Hellige block comparator model. Other types with new tubes of square shape and apparatus with prism arrangement for bringing the color fields into juxtaposition are also available. All models have two tubes through which the effects of color turbidity or other interfering substances are eliminated. This is especially advantageous for chlorine determination with ortho-tolidine reagent, and color discs for this method.

New Chicago Pump Representative

The Chicago Pump Co., 2336 Wolfram Street, Chicago, Ill., has announced the addition to its list of representatives, of R. J. Welsh, 503 Healy Building, Atlanta, Ga.

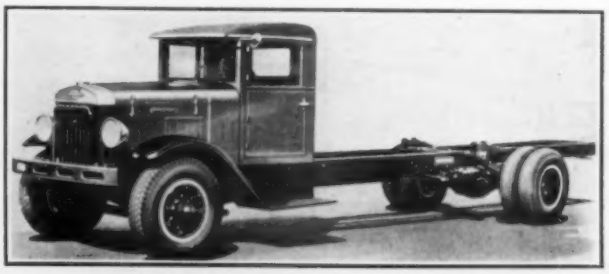
Two New Truck Models

Style in motor trucks is something new, but it is increasingly being demanded by the up-to-date community or contractor. Attractiveness in design, finish and appearance have accordingly received serious consideration in the development of the two new units made by the International Harvester Co. of America, 606 South Michigan Avenue, Chicago, Ill., and known as Models W-1 and W-3. This is evidenced especially by the lines of the three-piece hood with its controllable ventilators and the modernly equipped all-steel cab, chromium-plated radiator cover and lamp rims, and the attractive colors in which the trucks are finished. The frame, chassis and wheels are finished in red paint, the hood, cowl and cab in gray-green lacquer, and the fenders and running-boards in black enamel.

The rated capacities of these new units are 2½ and 3½ tons, respectively. Both trucks are of the double reduction drive type and are available in five wheelbases, the W-1 from 130 to 200 inches and the W-3 from 144 to 235 inches.

The engines are of the 4-cylinder, valve-in-head type with overhead camshaft and valve mechanism. Each consists of five independently maintained sub-assemblies which greatly simplify servicing and thus keep the trucks on the job. All parts are easily accessible, making possible a quick check-over.

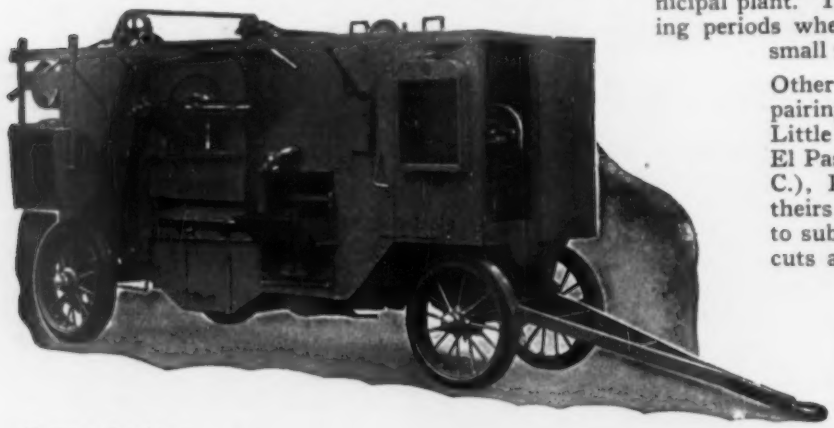
An unusually strong pressed-steel channel frame designed especially for heavy hauling service, internal expanding four-wheel brakes, a steering column set at an angle that provides maximum foot room for the driver, shatter-proof glass in the rear of the cab, and an attractive front bumper, are other features of these trucks. A wide range of transmission speeds, five forward and two reverse, makes possible efficient operation under varied conditions.



THE NEW MODEL W-3 INTERNATIONAL MOTOR TRUCK

Indianapolis Also Repairs Streets with a Chausse Portable Asphalt Plant

The most modern and economical street repair machine on the market, portable and stationary types.



The City of Indianapolis is another satisfied user of Chausse street repair plants. Its machine was bought for an auxiliary to a large stationary municipal plant. The Chausse unit is operated during periods when the large plant overhead, for small repairs, is an unjustified expense.

Other cities do all of their street repairing with a Chausse plant, such as Little Rock, Asheville, Springfield (O), El Paso, Bellingham. Washington (D. C.), Philadelphia and others operate theirs as auxiliaries to save long hauls to suburban repair areas, for plumbers cuts and permanent Winter patching.

The initial investment in these machines is moderate and operating costs surprisingly low. Repairs average less than $1 per sq. yd. of 2 in. mix, laid.

Chausse Products
Asphalt Plants
Tar Kettles
Kerosene Torches
Sand Driers
Mixer Heaters

Chausse Oil Burner Company
Elkhart, Indiana

Send for Catalog and Letters from Users

Are you willing to be shown— why "Good Roads"

AUTOGRADERS and DREADNAUGHTS

are the "graders supreme"

Straight line . . . rigid frame construction front to rear.

"Built in" power . . . RED SEAL CONTINENTAL engines . . . governed at a speed to insure ample power and long life.

Self-starter . . . no cranking.

Every control from operators seat.

Ease of operation and control . . . means more efficiency of the human element . . . low operating and maintenance cost.

Drives like a truck and as easily handled.

Equipped as desired with rear wheels or crawlers . . . scarifiers . . . bulldozers.

EFFICIENT—DEPENDABLE

The "AUTOGRADER" equipped with rubber-tired wheels, front and rear.

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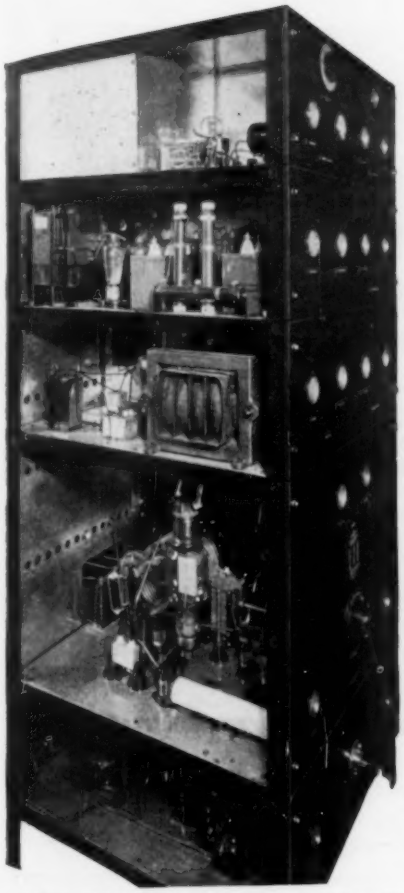


LEFT SIDE VIEW OF THE DE FOREST RADIOPHONE POLICE ALARM TRANSMITTER FOR SMALL AND MEDIUM-SIZE COMMUNITIES

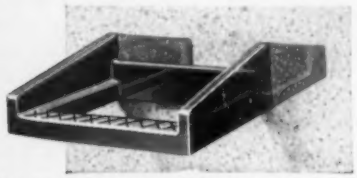
Michigan to Have Radio Police-Alarm System

The Department of Public Safety of the state of Michigan has recently contracted with the De Forest Radio Co., Passaic, N. J., for the installation of a state-wide radio police-alarm system. Although there are several large cities using such a system, Michigan is the first state to utilize this modern method of apprehending criminals. A central police radio station at Lansing will broadcast the alarms to the police cruisers and scout cars throughout the state, which will be equipped with short-wave police-alarm receiving sets.

The broadcast equipment will be a De-Forest type 5-B radiophone transmitter which has a carrier output rating of 5,000 watts and with its 100 per cent modulation reaches an output power of 20,000 watts on the modulation peaks. This power will be used in the daytime, and 1,000 watts carrier output will be used at night, reaching an output of 4,000 watts on the peak of the modulation cycle.

The transmitter will be used on a frequency of 1,662 kilocycles or approximately 180 meters, the short-wave receiving sets installed on the police cars being tuned and locked to receive only on the 1,662-kilocycle frequency.

By reason of the DeForest-owned oscillating Audion patents, which have been sustained by the United States Supreme Court, and many other important patents, this company is in a position to design, manufacture and install the equipment in its complete form. The system operates in a very simple and efficient manner. Reports to headquarters of a crime committed are immediately broadcast on the special police short-wave band to police patrol squads throughout the city, county or state. These clearly spoken orders are heard with loud-speaker volume in the police cars while in motion, within a few seconds after being reported at headquarters, thereby enabling the patrol crews to proceed at once to the point of the crime. Headquarters can keep in touch with the speeding patrol cars at all times.



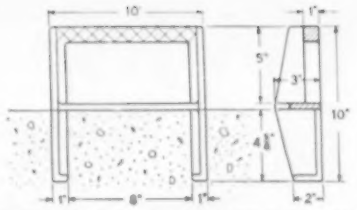
CLOW A-1670 CAST IRON MANHOLE STEP

Cast Iron Manhole Steps

Steps designed for embedding in the vertical walls of sewage disposal plants, valve and conduit manholes, scale and elevator pits, for exposed wall and chimney ladders or other places where dampness and the action of the elements are to be considered, are made by James B. Clow & Sons, 201 N. Talman Ave., Chicago, Ill.

These cast iron steps, known as A-1670, and will last indefinitely. They are suitmade from the same metal mixture that is used in the making of cast iron pipe and will last indefinitely They are suitable for embedding in either concrete or brick walls. The wide, flat, checkered tread provides a safe footing, and the raised sides prevent the foot from slipping off sidewise in either direction.

As a test of strength, one of the steps, taken from stock, was bolted to a steel column and subjected to a test of supporting 1,827 pounds of pig iron. The weight was concentrated in a space but 3¼ inches wide, or less than the width of a workman's shoe across the ball of the foot.



DIMENSIONS OF CLOW CAST IRON MANHOLE STEP

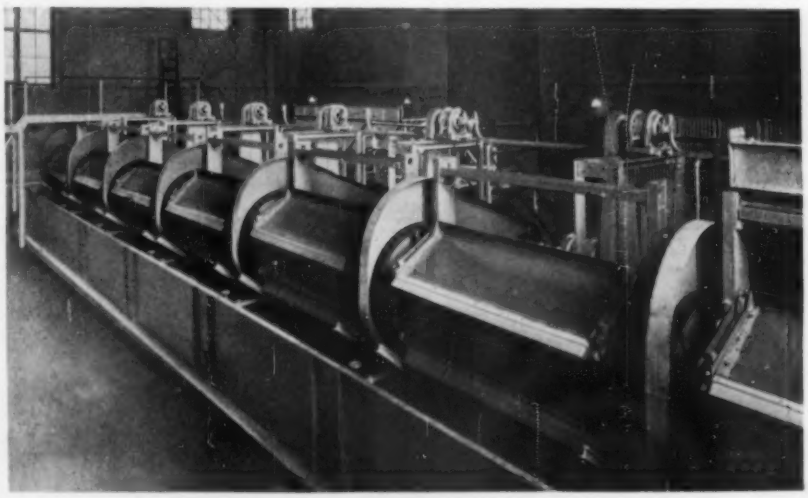
Traveling Water Screens

By screening the intake water and automatically elevating and disposing of fish, leaves, weeds, grass and other substances that may have collected on the screening surfaces, the necessity for frequent cleaning of condensers is eliminated, repairs to condensers and pumps are kept down to a minimum, and the efficiency of the condensing power-plant is maintained at a maximum.

In the 1930 Model Clean Water traveling intake screen made by the Link-Belt Co., 910 South Michigan Avenue, Chicago, Ill., particular attention is paid to the construction of the screening trays and baskets for elevating the trash. The trays are constructed with heavy section angle-iron one-piece frames, which are extremely rigid to withstand maximum pressures encountered during flood and tide emergencies. The manufacturers state that the trays are so constructed that each now has approximately 10 per cent greater depth of effective screening area.

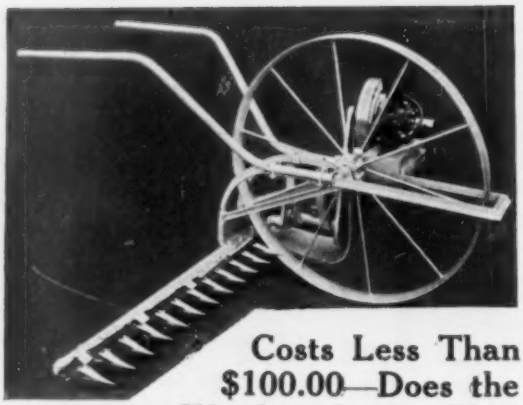
Another feature is the overlapping of the trays and the use of seal plates between the ends of the trays and the elevating chains to which they are secured, whereby the passage of trash is prevented.

The drive consists of a motor with moisture-proof windings, a herring-bone-gear fully-housed speed reducer running in oil and equipped with anti-friction bearings, and a guarded finished-steel roller chain drive to the screen head-shaft.



INTERIOR OF THE CITY OF DETROIT FILTRATION PLANT, SHOWING THE BATTERY OF SEVEN LINK-BELT "CLEAN WATER" SCREENS

New! the Rawls Motor Scythe



Costs Less Than $100.00—Does the Work of 20 Men

Weighs only 114 pounds.
Sickles propelled by ½ h. p. 2-cycle Johnson gasoline motor (manufacturers of the famous "Seahorse" outboard motor).
3-foot cutter bar.
Fuel consumption only 6 quarts per 8 hours.

Does Fast, Clean Work

The demand for Rawls Motor Scythe is very active, necessitating increased production.
To insure reasonable delivery, your order should be placed without delay. Catalog information on request.
Our long experience in the manufacture of mowing machines is your assurance that the Rawls Motor Scythe will give satisfaction.

Rawls Heavy-Duty Highway Mowers are used all over the world.

Full catalog information on request

RAWLS MANUFACTURING CO.
STREATOR, ILL.

Exclusive Manufacturers of Special Mowing Machines for Sixteen Years

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An Easier, More Economical Way To Mark Traffic Lines:—

Let us send you our illustrated circular telling about the NEWAYGO Line Marker—how it works, how easily it is operated and moved about, how it cuts operating costs, and what users think about it. It's low in first cost, too, because we sell almost entirely by mail, eliminating commissions and other sales expense.

NEWAYGO ENGINEERING CO.
NEWAYGO, MICHIGAN

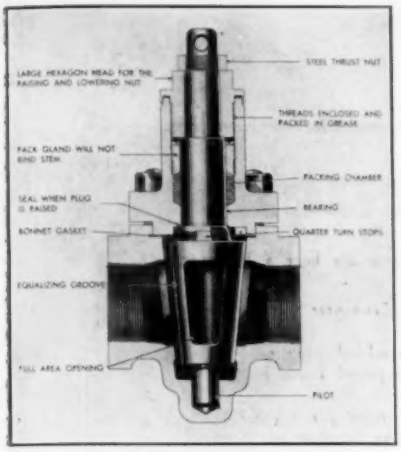
Portable and Stationary Asphalt Plants

Experience has proved that Doorley Asphalt Plants increase capacity without affecting the cost of operation. A surplus of uniformly heated material is always to be had.

These asphalt plants are made in 4 sizes, 450, 850, 1500 and 2000 sq. yds., 2-inch top soil per day. Burn coal or fuel oil, and the necessary change from one to the other can be made without trouble and delay.

Write for specifications

CHARLEROI IRON WORKS
SCOTTDALE, PA.



SECTIONAL VIEW OF THE MICHIGAN PLUG VALVE

Michigan Valve & Foundry Acquires Columbus Valve & Mfg. Co.

The latest move in the expansion program of the Michigan Valve & Foundry Co., Detroit, Mich., is the acquisition of the business, plant and assets of the Columbus Valve & Manufacturing Co., Columbus, Ohio, makers of plug type valves.

The plug type valve now being manufactured has a wide range of pressures and features of value in work where pipe pressures and velocities are high or where high pressure is accompanied by high temperature conditions.

The Michigan Valve & Foundry Co. are licensees under the Meehanite metal patents and are using this metal generally and very successfully throughout their manufacturing operations. Its greater density and high strength at elevated temperature will be utilized to extend the working range of both Michigan plug-valves and Michigan gate-valves.

The Columbus plant will continue to be used exclusively for plug-valve production, while the gate-valves, sluice-gates and other Michigan products will be handled by the Detroit plant. The operations of both plants will be directed by R. J. Goldie, General Manager of the company. Executive offices remain in Detroit.

A New Large-Capacity Rubbish Body

Because of the importance of rubbish collection in cities, considerable study went into the creation of the new large-capacity rubbish body mounted on a Fageol Flyer chassis for the service of the Modesto, Calif., Garbage Co. The body was built and installed by the Wood Hydraulic Hoist & Body Co. at San Francisco. The body capacity is 9 cubic yards, and with it is mounted a Wood model F-2 underbody hydraulic hoist for easy, quick dumping of large loads.

The unusual flared sides, with the side opening for easy loading of rubbish, draw attention, as do also the seat, seat-box, steps and tool-boxes which form part of the unit.

LARGE-CAPACITY WOOD RUBBISH BODY MADE FOR MODESTO, CALIF.

A Quick, Easy Way to Destroy Leaves

To see a workman traveling along a parking or through a cemetery or park, raking up piles of leaves and burning them in a burner as he picks them up, is a pleasant sight to the park maintenance man who has been accustomed to raking up leaves in piles and then hauling them away, or burning them on the ground and thus destroying the grass.

The lawn leaf and trash burner made by the Columbian Steel Tank Co., Kansas City, Mo., is a simple device consisting of a large receptable mounted above a flat pan and the whole mounted on low wheels with a tongue which enables a workman to pull the burner along with him. All that is necessary is to rake the leaves in windrows and dump them into the burner, where they are consumed at once. Nothing but a few ashes are left in the pan under the burner, and these may be scattered as fertilizer on the grass through a door at the back of the ash pan, or the ashes may be emptied with a shovel. The top part of the burner is hinged, so that it may be turned on its side for cleaning when necessary. A straight stick pushed through the holes stirs the leaves while burning.

THE COLUMBIAN RUBBISH BURNER ON WHEELS

Van Rensselaer Appointed Vice-President of American-LaFrance

Frank R. Van Rensselaer has been apponted to succeed Frank M. Watters as Vice-President in Charge of General Sales of the American LaFrance and Foamite Industries, Inc., Elmira, N. Y. Mr. Van Rensselaer has been with the corporation for some time, having been head of the San Francisco branch, Export Manager, Assistant to the VicePresident and Secretary to the corporation.

FRANK R. VAN RENSSELAER, VICE-PRES. IN CHARGE OF GENERAL SALES, AMERICAN LA FRANCE AND FOAMITE INDUSTRIES, INC.

Mr. Watters, who has been with the corporation and its predecessors for more than 26 years, will retire from active business, but will continue to serve as a member of the Board of Directors.

A Permanent Tennis Net for Parks, Playgrounds and Schools

A tennis net for permanent installation, eliminating daily erection and removal, and not affected by climatic conditions or extremes in temperature, has been developed by the American Wire Fence Co., 7 South Dearborn Street, Chicago, Ill., in the American chain link tennis net.

The net is made of copper bearing wire, galvanized after weaving into a 1½-inch mesh, and presents a surface unaffected by heat, cold or dampness. The regulation height is always maintained, the net never warps, shrinks, stretches or tears. The cable and hook bolts are galvanized, the adjustment nuts are of brass, and the canvas top of 10-ounce heavy duck with a weatherproof cord sewed in the hem.

Its height is constant and unvarying, thereby permitting exact serving. Its greater resiliency causes a ball that hits it to roll straight back, whereas with a cloth net it drops dead to the ground. There is no possibility of the chain link fabric's injuring the tennis ball and its cost compares favorably with that of a good cloth net.

AMERICAN CHAIN LINK TENNIS NET

FREEMAN

(4) wheel drive trucks

You don't hear much of "William the Conqueror" these days—but you *do* hear a lot about "FREEMAN THE CONQUEROR."

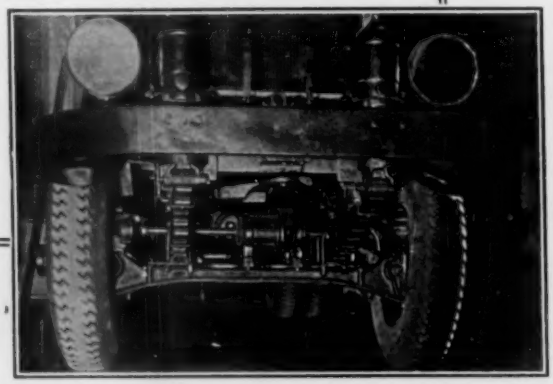
The new FREEMAN Four Wheel Drive, Front Wheel Steer, Truck "conquers when all other trucks fail."

Easy steering. High power. Victor of every road condition:—loose sand—slippery mud—snow. Ideally adapted for snow removal and maintenance jobs. Fast enough on paved roads for express service. Eight speeds forward, two reverse.

The FREEMAN Four Wheel Drive Truck will reduce your truck costs per ton mile. Its economy of operation is amazing! ***Write for our illustrated booklet giving further particulars.***

FREEMAN MOTOR COMPANY

DETROIT U. S. A. MICHIGAN



WHAT YOU WANT IN A TRUCK, YOU'LL FIND IN A FREEMAN

Take a "Sea Voyage" on the "Ship's Deck"

ENJOY these beautiful days high above the ocean on the famous "Ship's Deck" atop Colton Manor. Revel in the salty tang of the fresh sea air where complexions glow and appetites grow!

Atlantic City and Colton Manor work magic with one's health and comfort!

RATES

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Single.. $8 to $10
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Colton Manor

One *of the* Finest Hotels In Atlantic City

For a week or a week-end enjoy the luxury of the finest appointments without exorbitant price. Booklet. Write or wire for reservations.

250 ROOMS OVERLOOKING THE OCEAN SEA WATER BATHS